The·Northwestern·Miller

JANUARY 14, 1942

MILLING PRODUCTION SECTION

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FOOD—POWER BEHIND POWER

THE flour mill pictured below is not idle and abandoned. It is merely undergoing a "practice blackout." Within its somber walls and darkened windows the lights burn brightly and the wheels turn hour after hour without pause, just as they would if necessity demanded the protection of darkness. For milling, always an essential industry, is doubly so now, since it has again been made plain that the price of peace with liberty is both fortitude to endure and might to strike back.

The year 1942 finds America mustering her might, with a purpose that will not be turned aside by the necessity for sacrifice. That purpose is Peace, a peace which must extend far beyond our own boundaries. Americans are fighting now for such a peace—and only for that. America may boast that she has never lost a war, but it is even more to know that she has never exacted from a vanquished adversary a greater price than a decent peace.

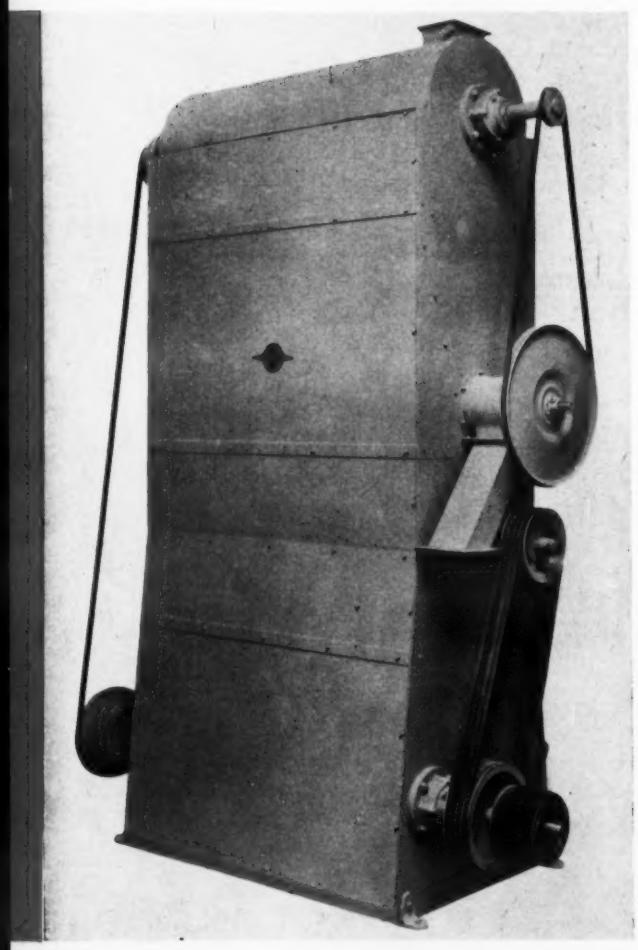
This country has been called "the arsenal of the democracies." It is that. But the full significance of the designation comes only with the realization that food is as necessary as armament in prosecuting a war to enforce peace, and even more so in preserving the peace once gained.

America helped win another war by providing food for her own armies and those of her associate nations, and probably now even more than then the food we will produce will swing the balance of power away from the enemies of government of, for and by the people governed. But Americans are looking beyond that. There is a well defined determination not to permit the peace attained by force of arms to fall again a ready victim to the force of arms.

In war or peace, bread made from wheat flour is the most important of the wholesome foods required by mankind. The modern flour mill, producing the chief ingredient of this invaluable food more economically and more dependably than it was ever produced before, is indispensable to world economy—and to world peace. Never before has it been so essential that the flour mills of North America, and the great storage elevators which supply them with wheat, operate dependably and without waste. For food—wholesome and fully adequate food—is the power behind all other power.

CONSERVATION!

Wheat is rich in the "B Vitamins." Is there a practical way to conserve them? Positively YES!



There is a constantly increasing demand for flour rich in the "B Vitamins" natural to the wheat berry—flour capable of producing *wholesome* and *palatable* bread which contains A MINIMUM OF CRUDE FIBER. Such flour can be made. IT IS BEING MADE! But the methods used ARE NOT PRIMITIVE AND CRUDE!

It is not expensive to produce such flour; on the contrary, with proper equipment, properly used, a better yield of salable flour can be had, using less power and with less "upkeep" of machinery.

INVESTIGATE THE POSSIBILITIES OF FORSTER FINISHING MACHINES

These machines DO NOT disrupt the modern system of milling for which a hundred years of intelligent and ingenious development is responsible. The skill of the miller—in cleaning, conditioning and breaking wheat and in purifying and reducing middlings—is just as essential as ever. FORSTER FINISHERS enable him to make better patent and clear grades, and MORE OF THEM,—with a BETTER YIELD. AND—FORSTER FINISHERS are capable of recovering vitamin-bearing material and rejecting materials high in crude fiber to a remarkable degree.

Write for Details

FORSTER MACHINES ARE USED AROUND THE WORLD!

The FORSTER MANUFACTURING CO., Inc.

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REPRESENTATIVES: Central States, St. Louis Mill Equipment Co., 1025 N. 6th St., St. Louis, Mo. • • Southeastern, J. B. Ferguson, 1048 Laurel Ave., Bowling Green, Ky. Northwest, R. J. S. Carter, 1219 Flour Exchange, Minneapolis, Minn. • Canada, Strong-Scott Mfg. Co., Ltd., Winnipeg, Man., and Toronto, Ont. • California, C. M. Frankel, 461 Market St., San Francisco. • • Great Britain, Holland, France, Sweden, the Argentine and Australia, Henry Simon, Ltd., Cheadle Heath, Stockport, England.

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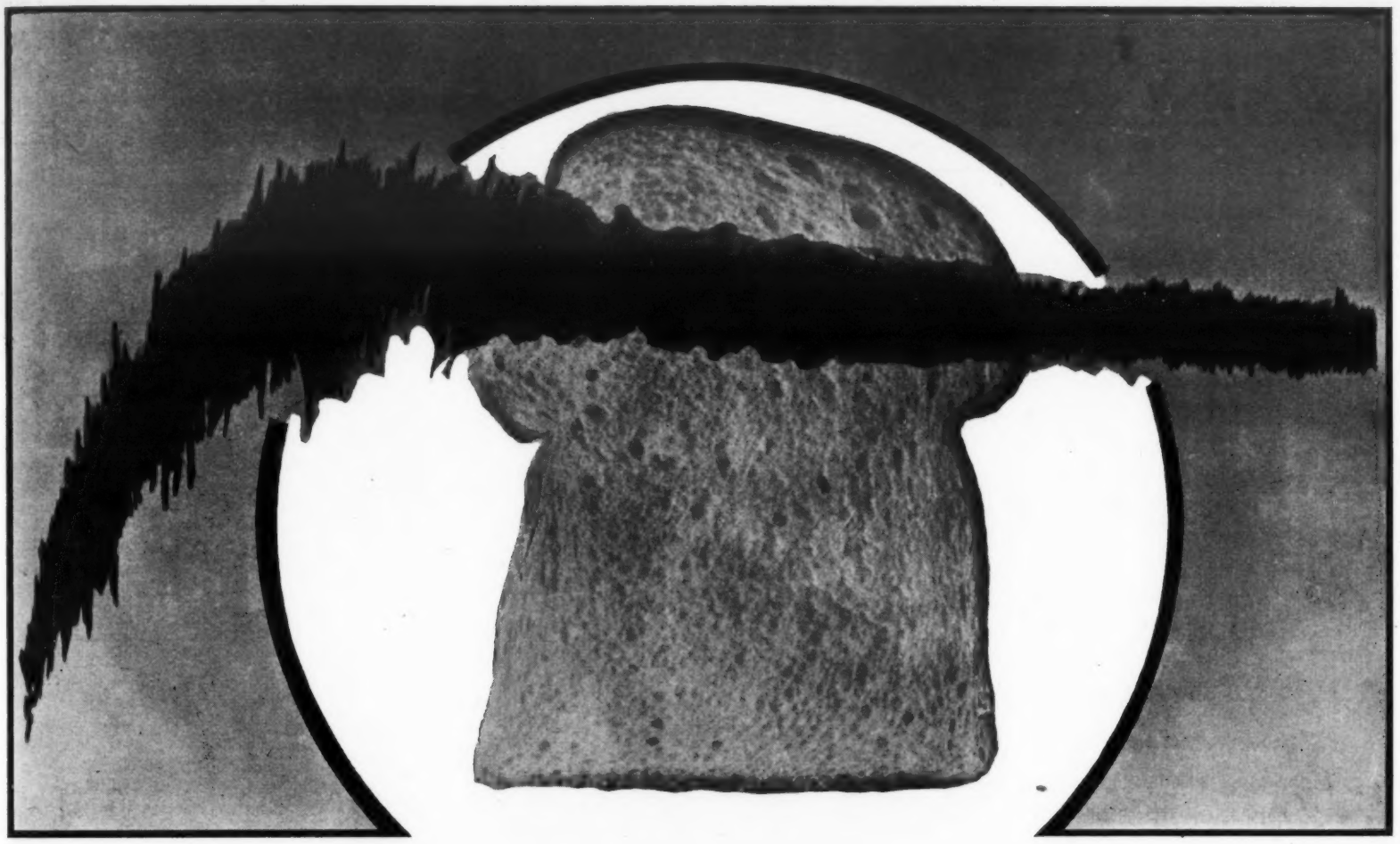


Baking Characteristics of Flour

By Dewey Robbins
Fisher Flouring Mills Co., Seattle, Wash.

ONE of the most important factors in flour milling is the selection and blending of wheats for the purpose of producing flour of uniform and satisfactory baking characteristics. The baking value of flour depends upon a multiplicity of factors, but for practical purposes all these can be classified under three general headings: absorption; mixing; and fermentation properties. Each of these characteristics is treated in this article as to importance, theory, influencing factors and measurement. In addition, some methods of controlling these factors in the manufacturing process are discussed.

ABSORPTION

Importance. Absorption indicates, to some degree, the strength and quality of flour. High absorption flours usually bake better bread, produce more loaves of bread per barrel, and are generally preferred by bakers.

Theory. More than half of the water absorbed by flour is said to be "bound" or *adsorbed* on the surface of gluten and starch material. Such water has no freedom of movement and does not contribute to the mobility of the dough. It is the "free" water—that is, water that is not bound to the surface of flour constituents —that gives dough its characteristic properties.

Variation in bound water is largely responsible for variation in absorption. While the amount of gluten in flour is approximately one seventh that of starch, it binds about the same amount of water as does the greater amount of starch. The greater water-binding capacity of gluten over that of starch is explained by the theory that gluten exists in thread-like strands instead of granules, and therefore presents a greater specific surface area per unit volume. Any variation in the amount of gluten immediately causes variation in the absorption capacity of a flour.

Influencing Factors. The principal factors influencing absorption of flour are moisture, wheat variety, per cent of protein, gluten quality, grade, granulation, and bleaching agents. Loss of moisture in storage increases absorption. Aging in storage also seems to increase absorption, perhaps through modification in the water-binding capacity of the gluten.

Other things being equal, absorption is (1) specific for each wheat variety and (2) varies according to the amount of protein. In a series of five experimentally milled Montana and Washington wheat varieties, the following absorptions were observed:

1940 CROP COMPOSITE SAMPLES

Variety—	Protein	Absorption*
A	11.5	61.5
B	9.5	57.5
C	14.7	65.5
D	13.0	68.0
E	9.5	62.5
D (low protein composite)	12.3	67.0
D (high protein composite)	14.3	69.0

*Brabender Farinograph absorptions plus a correction factor of 5%.

The influence of inherent varietal characteristics on absorption is apparent from the above results. Such variations as shown between C and D, for example, are due no doubt to inherent differences in their gluten quality factors. That such quality differences do exist between these varieties was evidenced by differences in their mixing characteristics, response to oxidizing agents and general baking value. Difference in absorption due to differences in amount of protein is shown in the high and low protein composites of variety D.

Frequently, variations in absorption are observed in samples of the same variety and protein range. For example, one sample of variety C, 13.3% protein, had an absorption of 60.2% and another sample of the same variety with 13.2% protein had an absorption of 63.8%. Here again, such differences must be due largely to differences in the physiochemical properties of their protein. Tests of these two samples showed wide dissimilarity in mixing curves, fermentation characteristics and baking value. It is not uncommon to find differences in baking characteristics within a given variety, greater than those between different varieties. The practice of segregating wheats on a variety basis is not always justifiable.

Grade has a marked influence on absorption, as evidenced by differences in absorption of the various flour streams in a mill. Tests in a commercial mill showed a range of about 12% in absorption of the different streams. It is apparent that the absorption of a flour is materially influenced by the combination of streams used in its make-up. The absorption of patents, straights, clears, etc., is different for this reason. The ab-

"Perhaps no test we are able to make is as effective as a mixing curve in differentiating wheat as to strength and gluten quality. Such a method affords the miller an excellent method for segregating and binning wheats on a quality basis," Mr. Robbins writes. He goes on to suggest: "Every miller should be alert to bread faults, particularly those that may be due to the fault of the flour. It is a good practice to visit the laboratory each day about the time the bread is out."

sorption of flour streams differs because of difference in amount of protein, gluten quality, granulation and chemical composition.

Granulation and bleaching agents influence absorption within certain limits. Bleaching agents affect absorption largely through their action on proteins; bleaching modifies the chemical and physical properties of protein and thus affects absorption to a slight extent.

Measurement. Various means are available for measuring absorption, but they all work on the same basic principle; that is, determining the amount of water necessary to bring a given weight of flour to a proper dough consistency. It should be remarked, however, that all the common methods of measuring absorption determine "initial" absorption only; no information is given on how much the dough will tighten up or slack off during fermentation. In the final analysis, however, initial absorption is the true absorption; if a dough changes consistency during fermentation it is due to factors other than water absorption capacity of the flour, and such factors should be corrected by suitable flour treatment.

MIXING CHARACTERISTICS

Importance. The commercial baker puts a great deal of stress on mixing characteristics of a flour. Perhaps no other measurable factor is so indicative of type as this factor. From the baker's point of view it is more informative than protein, for two flours may have the same protein but one may be a strong flour and the other a weak flour. While the difference is not apparent from their proteins, it is readily observed in the way they react in the mixer. Mixing characteristics are not only a measure of strength; in addition, they give the baker some information on the best way to handle the dough.

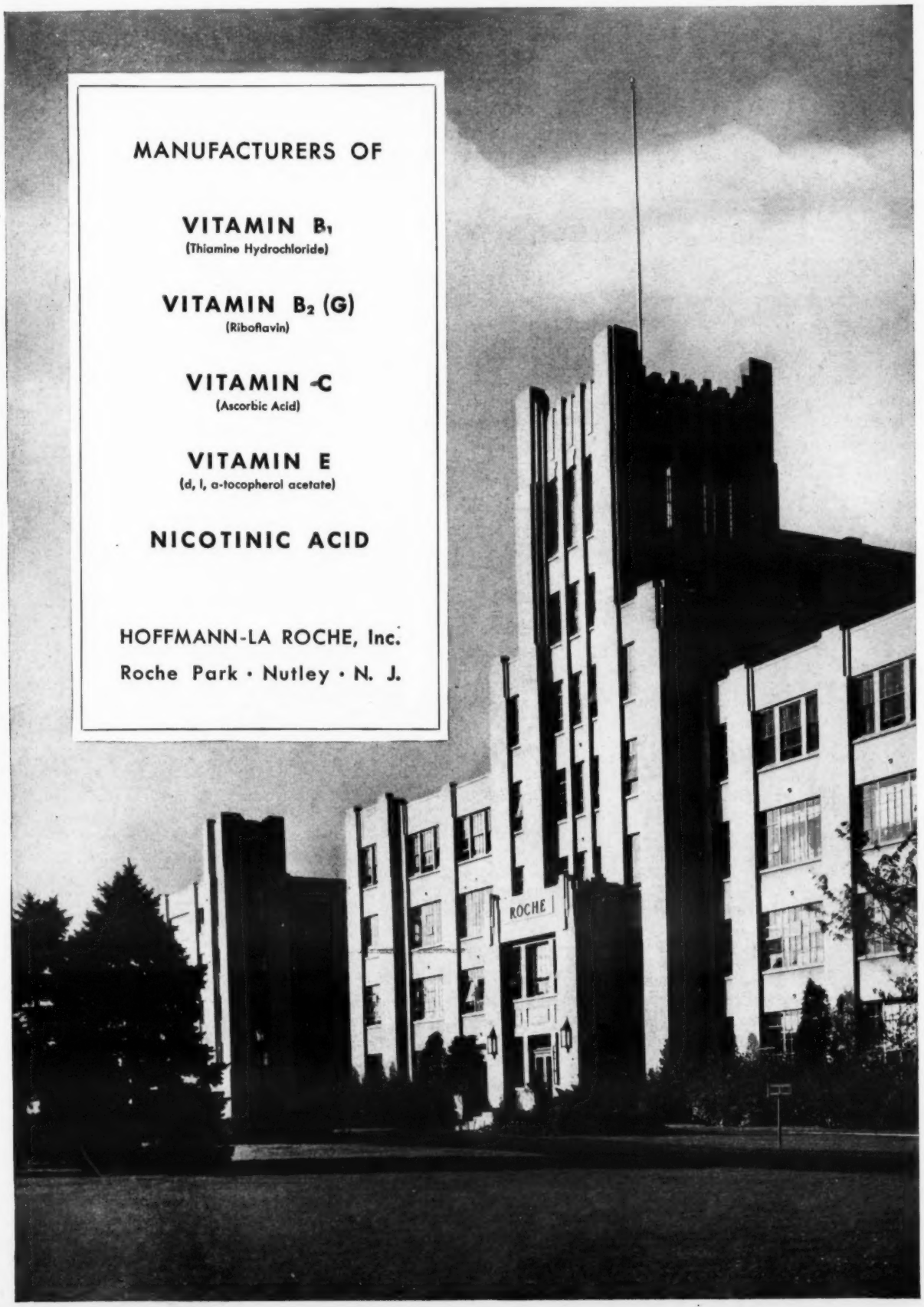
Modern high speed mixers and streamline production methods make exacting demands on mixing characteristics and mixing tolerance of flours. Production schedules do not permit variations in mixing time to suit a lack of uniformity in those characteristics. It is a well recognized fact that if two flours show differences in their mixing characteristics the difference is due to some fundamental factor, or factors, and the two flours will therefore react differently in the bakeshop. It is essential that mixing characteristics of bakery flours be uniform.

Theory. Mixing is largely a process of gluten hydration and gluten development. Hydration and physical development of gluten results from mixing flour and water. Such a mixture offers but little mechanical resistance at the start of the mixing process, but gradually, as the gluten begins to form and develop, the resistance to mechanical mixing becomes greater and greater until a point of maximum resistance is reached. If the mixing is continued, the gluten will eventually start to break down or offer less and less resistance. Prolonged mixing completely deteriorates the gluten. The point at which the gluten starts to break down varies with the type of flour used. With some flours the breakdown starts immediately after the point of maximum resistance is reached; with other types of flour the maximum resistance may continue for a considerable period before the breakdown starts. Some flours seem to reach a maximum peak of development but, with more mixing, again start to increase in resistance.

The rate of hydration and gluten development, as well as the resistance to mixing and the final breakdown characteristics, are largely dependent on the amount of gluten present and the strength or quality of the gluten. Other factors, such as mineral salts, enzymatic activity, etc., have some influence, but the reaction of these factors is more effective in later stages of dough development. The addition of baking ingredients, particularly salt, modifies mixing characteristics in variable degrees, and for this reason it is better to use only flour and water in studying mixing characteristics.

Factors Influencing Mixing Characteristics. In considering the various factors that influence mixing characteristics it is apparent that the variety-gluten complex is by far the most important. Ordinarily, each pure wheat variety tends to have specific mixing characteristics which vary within a range peculiar to that variety according to the amount of gluten present. This is due, no doubt, to inherent gluten "quality" as influenced by varietal characteristics. Frequently, however, individual samples of a pure variety show mixing characteristics different from the average of that variety. Such variations can be explained on the theory that these samples have gluten qualities different from those usually associated with the variety. When such wheats are encountered in practice, provisions should be made to blend them with wheats of similar characteristics rather than with wheats of the same variety.

Millers, bakers and cereal chemists



have for years recognized the importance of gluten quality. A great deal of research has been directed toward determining the nature and reasons for variations in this factor. It has been attacked from many angles, employing the chemical, biological, and physical approach, but it is now generally believed to be largely a colloidal problem. Environmental factors and condition of growth, especially the ripening period, all have an important influence on the colloidal properties of protein, and hence on the quality factor of gluten. Mineral constituents of the ash, oxidation-reduction regulatory substances, lipoids, phosphatides, germ contamination, proteolytic activity, etc., all influence the chemical and physical properties of the protein, and hence affect gluten quality. The study of this important phase of cereal chemistry is, of course, beyond the scope of the operative miller, whose concern with gluten quality is to have some means of measuring it, to the end that he is able to blend wheat of varying gluten qualities in such proportion that his flour will remain always uniform in this respect.

Measuring Mixing Characteristics and Gluten Quality. Mixing characteristics and gluten quality are so inherently related that a measure of one is largely a measure of the other. Both can conveniently be measured by the Farinograph or the Recording Dough Mixer. While these machines differ slightly as to mechanical principle, each will measure mixing characteristics as to rate of dough development, resistance to mixing, mixing tolerance and breakdown rate, and both will delineate and make permanent records of these characteristics. The Recording Dough Mixer is especially adapted to measuring gluten quality. By disregarding the height of the curve, and considering the pattern of the curve only, a good index of gluten quality is obtained. The height of the curve is influenced principally by the amount of protein in the flour, while the pattern of the curve is said to be due largely to the varietal characteristic which, in so far as the miller is concerned, is gluten quality. Trained observers can identify the wheats in an unknown flour to a remarkable degree of accuracy, simply by studying the pattern of the dough mixer curve.

It should be clear that mixing characteristic is not a measure of baking value. Mixing characteristic differentiates flours as to types. A flour of short mixing time and little or no mixing tolerance—in other words, a weak flour—may bake an excellent loaf of bread. In fact, it may bake just as well as a strong flour, but only under a limited baking procedure. Such a flour certainly could not take the place of a strong flour. Perhaps no test we are able to make is as effective as a mixing curve in differentiating wheat as to strength and gluten quality. Such a method affords the miller an excellent method for segregating and binning wheats on a quality basis.

FERMENTATION CHARACTERISTICS

Importance. In a broad sense, fermentation includes all the processes necessary to develop a dough. Optimum dough development requires suitable treatment and the proper balance of the various flour characteristics. Viewed in this light, fermentation is the most important factor in bread making. The modern baker works on a strict schedule and requires uniform fermentation characteristics with a reasonable degree of fermentation tolerance in case of interrupted schedule.

Theory. The bread baking process involves a balance of two classes of factors: (1) those concerned with gas production, and (2) those concerned with gas retention. Good gas production requires a proper and adequate supply of food and a proper environment for the yeast plant. Good gas retention requires a sufficient quantity of gluten, good gluten quality and proper gluten development.

Gas production is dependent on all the functions associated with the life processes of the yeast plant. Food and proper environment are essential. Yeast, like any other form of life, requires such foods as carbohydrates, proteins, fats and mineral matter. Its principal food, fermentable sugar, is not supplied in sufficient quantity by normal flour to meet fermentation needs in modern bread production methods, hence the practice of adding diastated flour to bakery flours.

Gas retention depends on the strength, quantity and development of the gluten in the dough. Gluten is developed mechanically, chemically and by enzymatic activity. Chemical and enzymatic development of gluten include changes in its chemical, colloidal and physical properties, thereby improving its gas retaining capacity and making it more "mellow," or susceptible to extension by the gas produced in fermentation. The chemical and enzymatic development of gluten that take place during fermentation is necessary in order to produce good bread. The amount of development required is the limiting factor in "fermentation time."

Factors Influencing Fermentation Characteristics. The most important factors

(Continued on page 22a.)

53 YEARS EXPERIENCE

IN THE

CHEMISTRY OF NATURAL BRINES

FOR FIFTY-THREE YEARS The Dow Chemical Company has drawn brine from its wells at Midland for the manufacture of a long line of chemicals. Up from the wells, through the Dow laboratories come the basic elements of over 400 products. Like magnesium—so vital to the nation's defense achievements, and plastics—so adaptable to a thousand uses, they are as different as they are indispensable to industry and defense.

Against this long, wide background of scientific search and engineering ingenuity a new fumigant has been perfected—Dow Methyl Bromide. Millers, seedsmen, food handlers—representatives of all industries with a fumigation problem—testify to its outstanding superiority.

The new Methyl Bromide has its own place beside vital magnesium metals, adaptable plastics, solvents for cleaners, insecticides for growers, pharmaceutical chemicals, and all the line of Dow chemicals. It can be depended upon to do its job thoroughly and with profit for the man who employs it.

DOW METHYL BROMIDE

THE SUPERIOR FUMIGANT

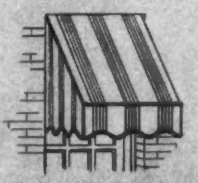
PLASTICS

PHARMACEUTICAL

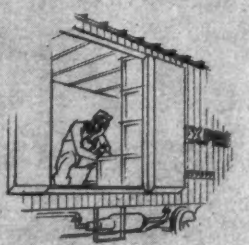
DOWFLAKE

MAGNESIUM

INSECTICIDES



DOWICIDES

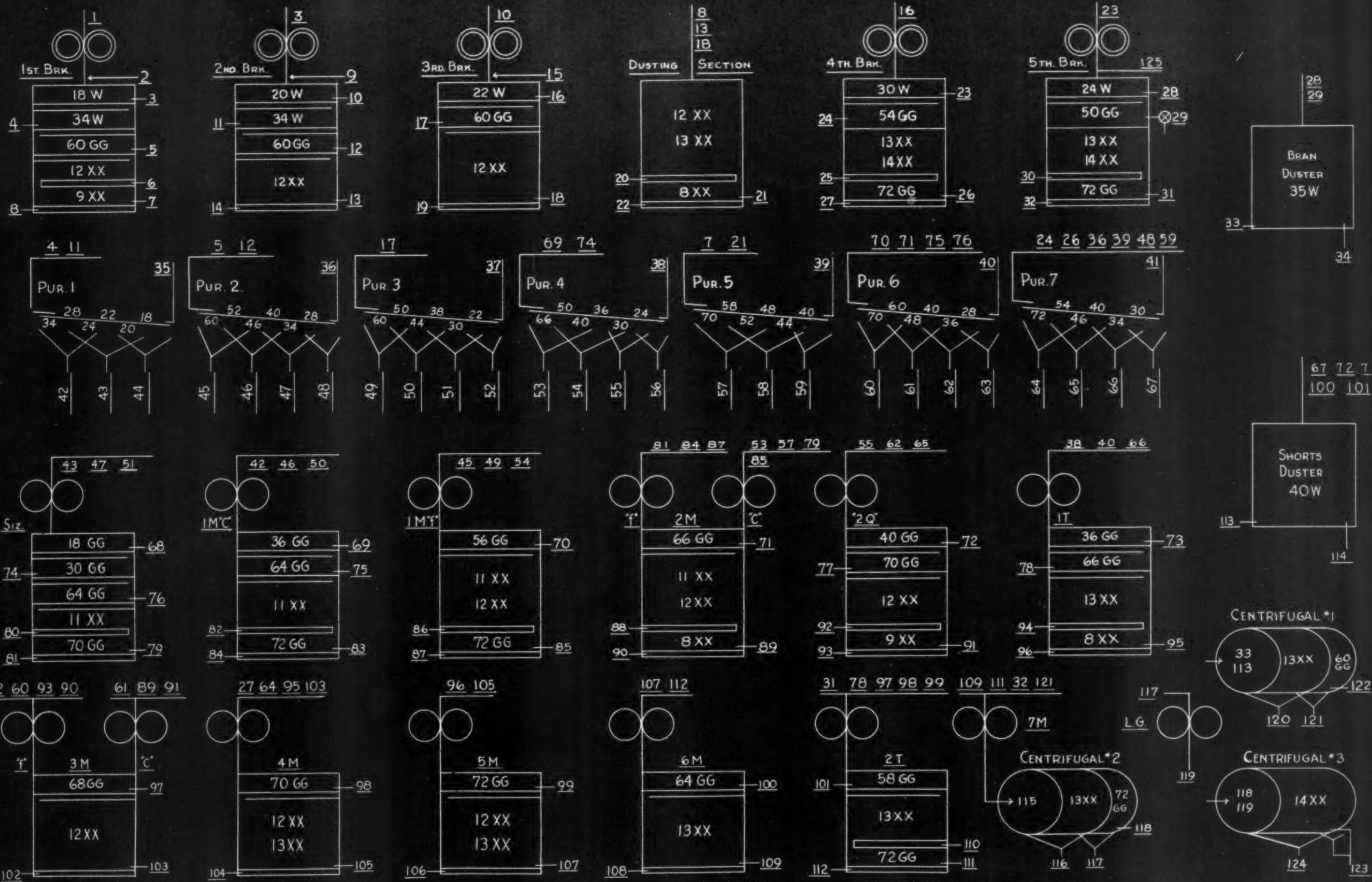


METHYL BROMIDE

DOW

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

NEW YORK CHICAGO ST. LOUIS


1ST. BRK.
18 W
34W
60 GG
12 XX
9 XX
2ND. BRK.
20 W
34 W
60 GG
12 XX
3RD. BRK.
22 W
60 GG
12 XX
DUSTING SECTION
12 XX
13 XX
8 XX
4TH. BRK.
30 W
54 GG
13 XX
14 XX
72 GG
5TH. BRK.
24 W
50 GG
13 XX
14 XX
72 GG
BRAN DUSTER 35W
SHORTS DUSTER 40W
PUR. 1
PUR. 2.
PUR 3
PUR. 4
PUR. 5
PUR. 6
PUR. 7
Siz.
1M "C"
1M "f"
"f" 2M "C"
"2 Q"
1T
3 M
4 M
5 M
6 M
2 T
7M
L G
CENTRIFUGAL #1
CENTRIFUGAL #2
CENTRIFUGAL #3

PRODUCTS OF MILLING OPERATIONS

THE ordinary milling flowsheet utilizes lines to show the origin and destination of various products resulting from the operation of rolls, purifiers, sifters and other machines in the milling system. The flow on the opposite page follows a different plan: in place of lines are numbers. The essential details about these numbers—what stocks they represent and where they are sent for further treatment—are encompassed in a complementary table.

Charles H. Briggs, of the Howard Wheat and Testing Laboratories, Minneapolis, was one of the first to suggest such an approach to the diagramming of milling streams. He felt that time would be saved if explanatory numbers were substituted for the traditional lines. In a "typical" flow, the journey of products must be followed rather laboriously. Here, a glance at any particular portion of the drawing provides the key for quick and easy use of the table.

The original idea of a "number flowsheet" will be extended in a series of articles to follow this preface. Each

FIRST OF A SERIES

to be centered during coming months around photographs and analyses of milling stocks

month several of the number stocks will be treated in detail. Pictures of the cloth over or through which they have gone, as well as of the products themselves, will be presented. Ash and protein analyses of each stream will also be included.

Stocks to be pictured, based upon this flowsheet, were collected and analyzed in a southwestern mill.

THE MILLING STOCKS

1. Cleaned and conditioned wheat (in this case hard winter).
2. Chop of 1st brk rolls.
3. Scalp of 1st brk, to 2nd brk rolls.
4. First brk sizings (heavy middlings) stock, to Pur 1.
5. First brk coarse midds, to Pur 2.
6. First brk flour, to 1st clear or 2nd clear.
7. First brk medium midds, to Pur 5.
8. First brk "dunst," through 9XX to dusting section.
9. Chop of 2nd brk rolls.
10. Scalp of 2nd brk to 3rd brk rolls.
11. Second brk sizings (heavy midds) stocks, to Pur 1.
12. Second brk coarse midds, to Pur 2.
13. Second brk medium and fine midds, to dusting section.
14. Second brk flour.
15. Chop of 3rd brk rolls.
16. Scalp of 3rd brk to 4th brk.
17. Third brk sizings and coarse midds, to Pur 3.
18. Third brk medium and fine midds, to dusting section.
19. Third brk flour.
20. Dusting section flour.
21. Medium midds from dusting section, to Pur 5.
22. Fine dusted midds, from dusting section to 3rd midds "fine" rolls.
23. Scalp of 4th brk to 5th brk.
24. Fourth brk coarse midds, to Pur 7.
25. Fourth brk flour.
26. Fourth brk medium midds, to Pur 7.
27. Fourth brk fine midds, to 4th midds rolls.
28. Fifth brk scalp, to bran duster.
29. Fifth brk branny stock, to shorts or to bran duster.
30. Fifth brk flour.
31. Fifth brk stock to 2nd tailings rolls.
32. Fifth brk fine stock, to 7th midds rolls.
33. Finished bran.
34. Soft, branny material from bran duster, to centrifugal reel 1.
35. Tail of Pur 1 to 4th brk rolls.

(Continued on next page.)

HOW LONG HAS IT BEEN

SINCE YOU'VE THOUGHT ABOUT SELF-RISING FLOUR?

In the past ten years, according to the best available figures, there has been a slow but steady increase in the consumption of self-rising flours. During this time, volume has increased—but more important—the market has expanded. More people are now using self-rising and specialty flours than ever before.

With income levels rising throughout the nation these facts are of paramount interest. Many families are now able to use the wheat flour which they have always preferred and many are turning to the self-rising types.

During the past ten years, too, there have been consistent improvements in the leavening agents used in self-rising flours. As the makers of HT Phosphate and with a new baking laboratory designed, built and staffed to work with you in developing flours for your line, Monsanto is in an excellent position to advise and assist you.

HT Phosphate is noted for ✓HIGH TEST PURITY—since it is made from Monsanto produced pure phosphoric acid and heart-of-the-vein food-grade lime ✓UNIFORM NEUTRALIZING STRENGTH ✓CORRECT GRANULATION ✓FREE FLOWING.

MONSANTO CHEMICAL COMPANY, Phosphate Division, St. Louis, Missouri.

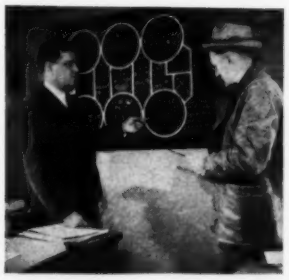
HT PHOSPHATE

Mill Stocks

(Continued from preceding page.)

36. Tail of Pur 2 to Pur 7.
37. Tail of Pur 3 to 4th brk rolls.
38. Tail of Pur 4 to 1st tailings rolls.
39. Tail of Pur 5 to Pur 7
40. Tail of Pur 6 to 1st tailings rolls.
41. Tail of Pur 7 to shorts duster.
42. To 1st midds "coarse" rolls.
43. To sizings rolls.
44. To 4th brk rolls.
45. To 1st midds "fine" rolls.
46. To 1st midds "coarse" rolls.
47. To sizings rolls.
48. To Pur 7.
49. To 1st midds "fine" rolls.
50. To 1st midds "coarse" rolls.
51. To sizings rolls.
52. To 4th brk rolls.
53. To 2nd midds "coarse" rolls.
54. To 1st midds "fine" rolls.
55. To "second quality" rolls.
56. To 1st tailings rolls.
57. To 2nd midds "coarse" rolls.
58. To 1st midds "fine" rolls.
59. To Pur 7.
60. To 3rd midds "fine" rolls.
61. To 3rd midds "coarse" rolls.
62. To "second quality" rolls.
63. To 1st tailings rolls.
64. To 4th midds rolls.
65. To "second quality" rolls.
66. To 1st tailings rolls.
67. To shorts duster.
68. To germ or bran.
69. To Pur 4.
70. To Pur 6.
71. To Pur 6.
72. To shorts duster.
73. To shorts duster.
74. To Pur 4.
75. To Pur 6.
76. To Pur 6.
77. To 1st tailings rolls.
78. To 2nd tailings rolls.
79. To 2nd midds "c" rolls.
80. Sizings flour.
81. To 2nd midds "f" rolls.
82. First midds flour.
83. To 2nd midds "c" rolls.
84. To 2nd midds "f" rolls.
85. To 2nd midds "c" rolls.
86. First midds flour.
87. To 2nd midds "f" rolls.
88. Second midds flour.
89. To 3rd midds "c" rolls.
90. To 3rd midds "f" rolls.
91. To 3rd midds "c" rolls.
92. Flour from "2nd quality" reduction.
93. To 3rd midds "f" rolls.
94. First tailings flour.
95. To 4th midds rolls.
96. To 5th midds rolls.
97. To 2nd tailings rolls.
98. To 2nd tailings rolls.
99. To 2nd tailings rolls.
100. To shorts duster.
101. To shorts duster.
102. Third midds flour.
103. To 4th midds rolls.
104. Fourth midds flour.
105. To 5th midds rolls.
106. Fifth midds flour.
107. To 6th midds rolls.
108. Sixth midds flour.
109. To 7th midds rolls.
110. Second tailings flour.
111. To 7th midds rolls.
112. To 6th midds rolls.
113. To centrif. No. 1.
114. Finished shorts from duster.
115. Reduced stock to centrif. No. 2.
116. Seventh midds flour.
117. To "low grade" rolls.
118. To centrif. No. 3.
119. Reduced stock to centrif. No. 3.
120. Bran-duster and shorts-duster flour.
121. To 7th midds rolls.
122. "Gray" shorts.
123. "Red dog," or "gray" shorts.
124. Flour from final reduction.

CLEAN FLOUR BEGINS WITH CLEAN GRAIN



. . . . and TODAY, as never before, millers and elevator men are depending on Larvacide, the Original Tear Gas Fumigant, because of its advantages, unmatched in any other fumigant, and its 17-year record of satisfactory service.

TO SAVE LOSS IN YIELD FROM WEEVIL AND OTHER GRANARY INSECTS

for only ⅙ of a cent per bushel, in closed bins

1—**TREAT ANY INFESTED GRAIN** at time of receiving or turning. It's easy, costs little, takes almost no extra time . . . and stops the pests before they can gain a toehold. Larvacide also tends to sweeten grain and remove slightly musty odor.

2—**HAVE CLEAN BINS.** A quart or so of Larvacide, applied from top, helps give your clean arriving grain a clean storage.

3—**CONTROL MOTH** with Larvacide bin top treatment.

And in the Mill:

4—**GENERAL MACHINERY TREATMENT** with occasional Spot Treatments, as may be required.

5—**TREAT** *ALL* **RETURNED SACKS** in Vault. Also treat cars after loading outgoing shipments, to guard against possible car infestation.

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Larvacide experience includes work with mills and elevators of every type and size, and with every kind of grain. ● Larvacide *penetrates* where lighter fumigants may not, *to kill life within grain kernels.* ● Larvacide cuts Accident Risk. Its inseparable self-warning quality drives out all not protected by mask, even at far below lethal concentrations. Also, it is non-explosive and nonflammable. ● Larvacide is Chlorpicrin, over 99% pure, made especially for treating grain and flour. It has no harmful effect upon either, following proper aeration. ● The makers of Larvacide, constantly alert for improvement, bring you better, more speedy and economical ways of using this tear gas fumigant. For example: the Larvacide Mill Piping System makes it possible to do in *minutes* what formerly took *hours.* Blue print of this System will be mailed on request. Manual application is as effective as ever and is preferred by many millers.

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1936	*Vitamin B_1 was synthesized in the Merck Research Laboratories.*	1940	*Alpha-Tocopherol Merck (Vitamin E) was made available.*
1937	*Vitamin B_1 Merck (Thiamine Hydrochloride U.S.P.) was made available.*	1940	*2-Methyl-3-Phytyl-1, 4-Naphthoquinone (Vitamin K_1) was made available.*
1938	*Nicotinic Acid Merck (U.S.P.) was made available.*	1940	*2-Methyl-Naphthoquinone Merck (Vitamin K Active) was made available.*
1938	*Vitamin B_2 Merck (Riboflavin) was made available.*	1940	*Pantothenic Acid (Member of B Complex) was identified and synthesized by Merck chemists and their collaborators in other laboratories.*
1938	*Alpha-Tocopherol (Vitamin E) was identified and synthesized by Merck chemists and their collaborators in other laboratories.*	1940	*Calcium Pantothenate Dextrorotatory Merck was made available.*
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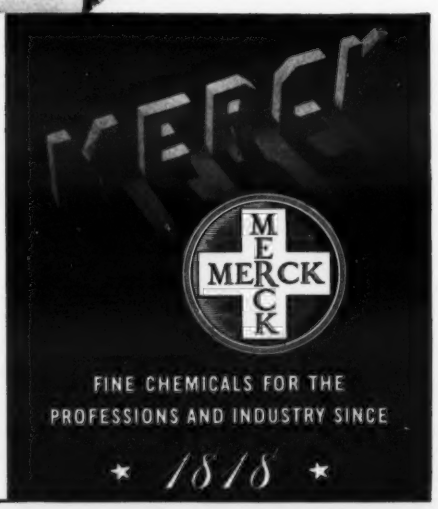

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Gold—and Sutter's Mills

By Rad Nelson

- **Discovery of the Yellow Metal in California Did Not Bring Wealth to Johann August Sutter, First Miller of the West.**

GOLD was discovered in California 94 years ago this month. Flour mills on the coast played a curious part in this discovery which preluded a riotous period characterized by the wild scramble of the "forty-niners" to stake claims and dig for the precious metal which washed to the surface in the mill race at Sutter's mill.

The popular belief that Sutter's mill on the south fork of the American River was a flour mill is not altogether correct. On that momentous day, Jan. 24, 1848, when John Marshall picked the nuggets from the torrent, he was supervising the construction of a saw mill, to supply lumber for Sutter's other developments in the vicinity. Johann August Sutter, a native of Kandern, Switzerland, was certainly the first flour mill owner in California, bringing overland by ox-drawn wagon the first steam mill erected west of the Rockies. This probably came from the Middle West where combination lumber and flour mills, operated by steam, were being introduced. In the West, where the land had to be cleared before cultivation, it was natural for saw mills to be built in conjunction with small flour mills, to grind the prospective crops. Prior to this flour was made in California only on hand mills, by Indians and the mission monks.

Sutter explored the Sacramento Valley and the fertile lands around San Francisco Bay upon his arrival in 1838. It was still part of the Republic of Mexico, settled by Indians, poor Mexican adventurers and scattered mission outposts. He made friends with these people, and conceived the plan of developing the richness of the soil on a vast scale and calling it New Helvetia, after his homeland.

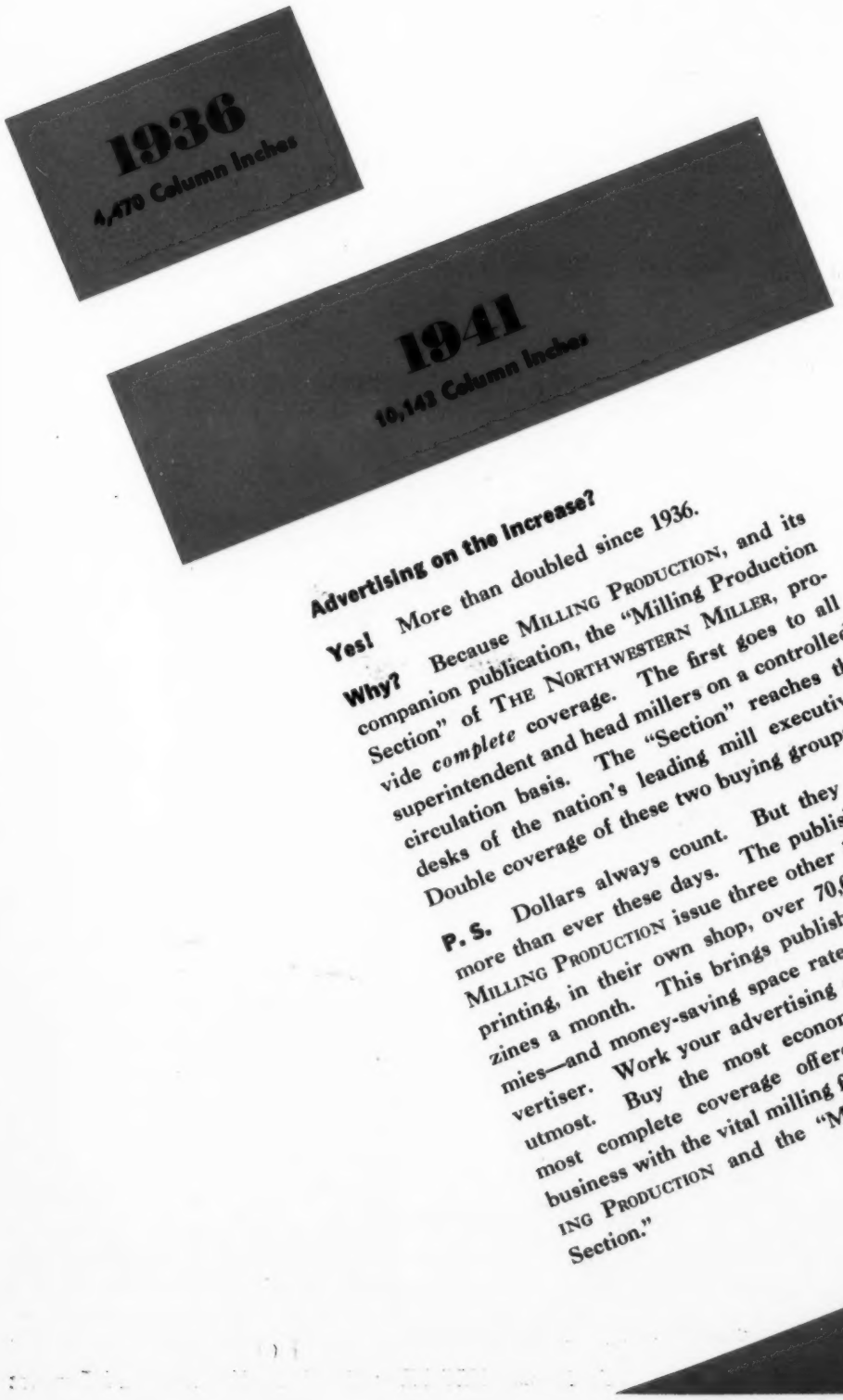
Securing a grant of land and a commission from Governor Alvarado, Sutter set to work. Under his phenomenal leadership, incoming settlers tilled the rich land. Wheat and crops of all kinds, some imported from the Old World, sprang up as the soil yielded willingly to cultivation. Fine stock ranches, truck gardens, orchards spread to the horizon. Prosperity came to all, and in double portion to Sutter, who became wealthy, respected, and well known in the East where the productivity of the land beyond the mountains was becoming a lure. But an era of even more prosperity was soon to begin. The discovery of gold! San Francisco became literally the "golden gate" and the Barbary Coast was born.

Ironically this discovery of gold on Sutter's property had an extremely adverse effect upon his holdings. His influential position was almost literally undermined by the gold diggers, and subsequent economic repercussions. Sutter, helpless, saw his mills and fields deserted by men blindly heeding the call to the "diggings." In his own words, "my domain was overrun. The fever swept the southern towns; they too emptied rapidly. The mills ceased to work. They were plundered to the very millstones."

The prospecting forty-niner, uncouth, roughly clad, stooping in a mountain stream with a pan of pebbles to sift the gold from the sand, is a familiar picture, typical of the gold rush days. Recent developments in whole wheat milling processes, in which mining machinery has been adapted to the "peeling" of wheat, draw attention to the processes then used to separate gold from the silt. On the spur of the moment sifting equipment in Sutter's flour mills was appropriated. If this was silk bolting cloth or even the tinned mill screen used in modern sifters, it certainly could not have lasted very long. As news of the bonanza spread, all types of sifting and separating machines became scarce or unobtainable altogether. As the avalanch of gold seekers engulfed Sutter's mill race and spread through the mountains in their haste to get "rich quick," every conceivable apparatus was employed to wash the sands.

Many used shallow perforated pans, pocket-size or larger. Woven Indian baskets were used, remindful of early processes of separating ground wheat and flour. A popular method of washing the gold bearing rocks was with a "cradle," a device fitted with screens into which a few shovelfuls of the stream bed would be placed and water passed through, while the machine was rocked by hand. More complicated gold "mills" were used, huge affairs with windmill arms and wings, devised by the fanciful

(Continued on page 18a.)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The Vitamin and Iron Content of Wheat and Flour

WHEN flours with enhanced vitamin and mineral content are made by combinations of vitamin-rich mill streams . . . it will not be possible to control uniformity in vitamin content without assaying the wheat blends before grinding, and the vitamin-rich streams, as a guide to the regulation of the amount of added pure vitamins."

This statement appeared at the conclusion of an address made by R. C. Sherwood, of General Mills, Inc., before the 1941 convention of the Association of Operative Millers. Even standard white flour enriched with pure vitamins and mineral compounds must be checked for uniformity, he remarked. Part of the reason for this is that mixing of the added ingredients and the flour must be carefully carried out: another—affecting in lesser degree regular enriched white flour, but of primary importance in connection with "natural" vitamin flour—is that the vitamin and mineral contents of wheats are subject to wide variations.

These variations are the basis of Dr. Sherwood's paper, which covered the work of many investigators. It was supplemented by numerous charts and tables. These, for the purpose of this abstract, will, for the most part, be mentioned only in a general manner.

Whole wheat, the writer points out, has long been recognized as an excellent source of thiamin, a fair source of riboflavin and, more recently, as a good source of nicotinic acid. These substances are not, however, evenly distributed throughout the wheat kernel. And various wheats also contain widely different amounts of the factors.

As an example of this, 31 samples of whole wheat flour collected from bread mills in the United States were found to contain an average of 2.27 mg of thiamin per lb. (A mg of thiamin equals approximately 333 international units—therefore the average for these flours was about 756 I.U.) The values ranged from 1.9 to 2.5 mg.

Whole wheat bread baked with these flours averaged 1.36 mg per lb—nearly 60% of the thiamin value of the whole wheat flour.

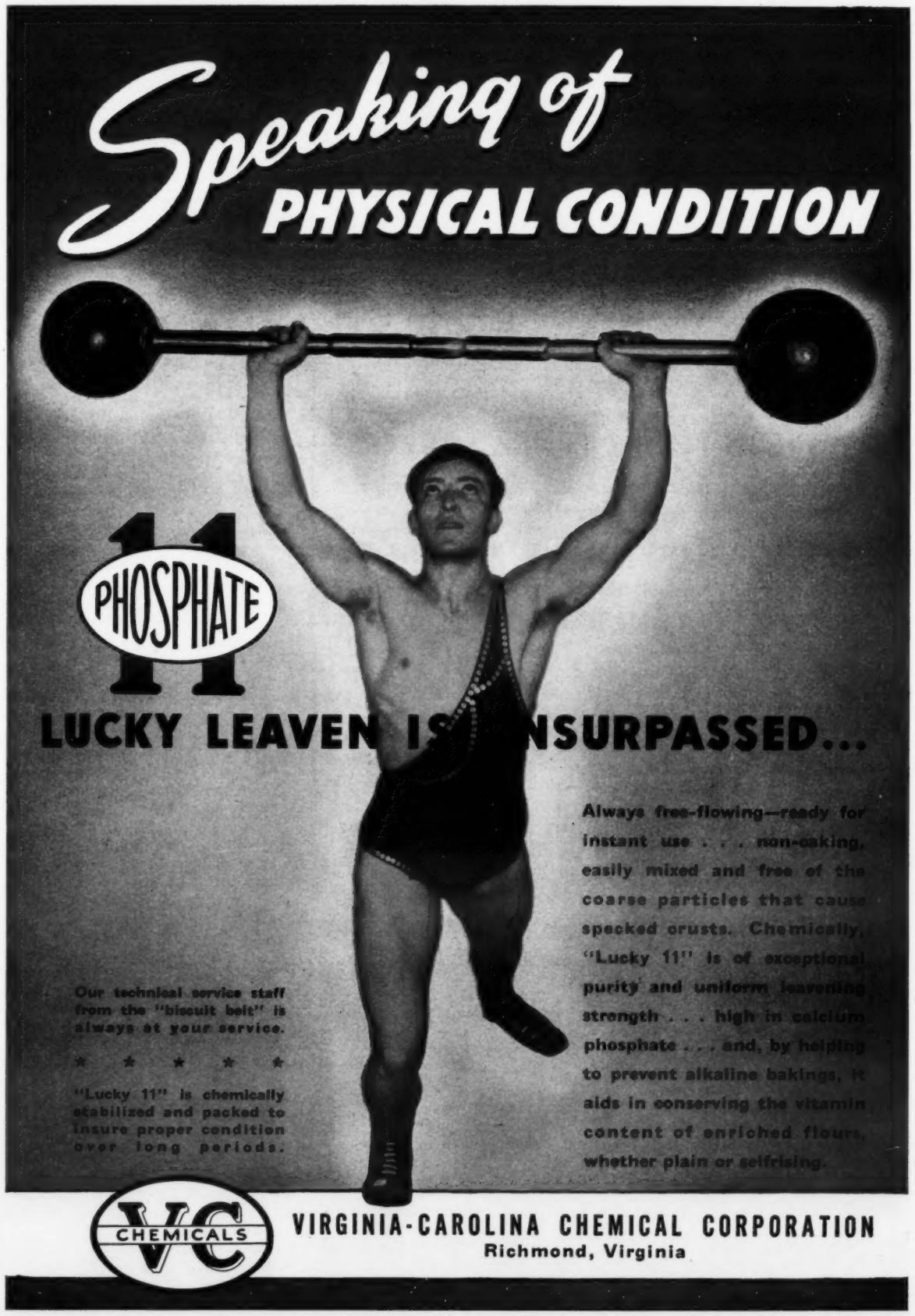
Commercial wheat mixes will generally show less variation in vitamin contents than individual varieties, since environmental conditions of growth are a definite factor affecting thiamin content. Hard spring wheats and hard winters as a rule contain more thiamin than soft wheats. A group of six experimentally grown hard springs was found to average 2.75 mg of thiamin per lb over a range from 2.24 to 3.16. The average has so far been found slightly lower for hard winters. This figure for four Kansas varieties was 2.25, with a range from 2.00 to 2.46. A large group of miscellaneous winter wheats averaged 2.12. High in the group was 2.70; low was 1.65. Scattered samples of Canadian wheats averaged 2.31.

A series of 12 wheats grown in the same location in the Pacific Northwest had a mean of 2.09, ranging from 1.76 to 2.44. Soft wheats in Ohio tested from 1.79 to 2.38, averaging 2.03.

Commenting upon these figures, Dr. Sherwood states: The wheat samples here reported represent pure varieties, grown at known locations. Since it is apparent from results obtained thus far that environment influences thiamin content it will be necessary to make large numbers of determinations of samples of the several varieties mentioned here, grown under different conditions, before it is safe to draw conclusions respecting the effect of variety upon thiamin content."

In distinct contrast to thiamin investigations, tests for riboflavin have indicated that this factor is little affected by environment. Average in mg per lb of a series of spring wheat samples was 0.54, with a low of 0.48 and a high of 0.60 for different varieties. Fifteen soft wheat varieties averaged 0.53; samples of hard winters tested from 0.49 to 0.55, to center around a figure of 0.52. Again, these tests were not extensive enough to be considered at all conclusive. Interestingly, the riboflavin requirement for enriched white flour (now postponed because of a riboflavin shortage) is a minimum of 1.2 mg per lb.

Since thiamin is not distributed evenly throughout the wheat kernel various commercial milling products contain, as is well known, entirely different amounts of the vitamin. Patent flour is lowest. There is a progressive increase in the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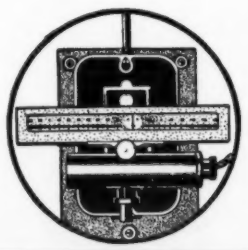

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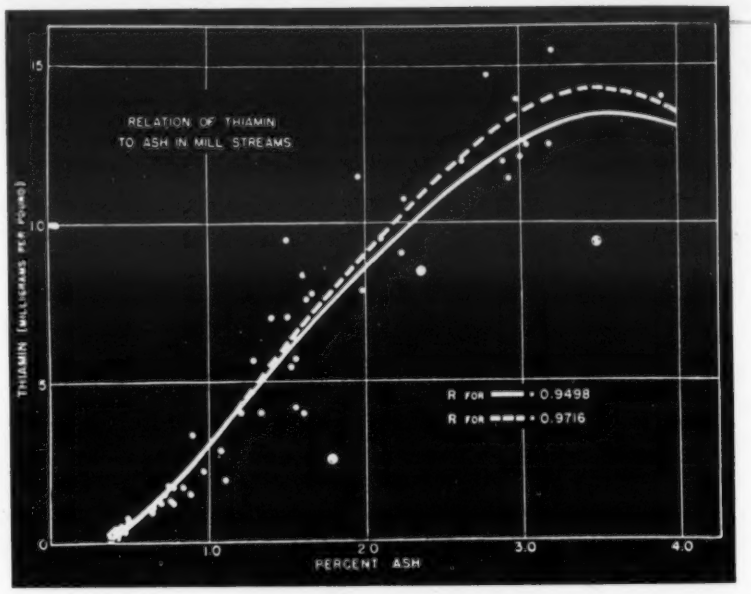

Relationship Between Thiamin and Ash Contents

less purified flours and of course, in the feeds. Methods of milling, and the raw material, make it impossible, however, to consider as a matter of course that any particular type of wheat flour product or feed will have a definite amount of thiamin. It *is* reasonable to assume, Dr. Sherwood states, that patent flour, which is never entirely devoid of thiamin, has at least 0.2 mg per lb.

There is a relationship between the percentage of extraction and the thiamin content of flour, and also between ash and thiamin. Of the latter, Dr. Sherwood points out:

"In the course of our investigations to determine the distribution of thiamin in the products of wheat milling, a large number of mill streams have been examined. These have been obtained from mills all over the United States, and accordingly they represent a variety of milling operations performed on many types of domestic bread wheats. The ash content of the streams ranges from the low values of patent flour to the high values of low grade flours and feeds. Since we made a large number of determinations it seemed desirable to calculate the correlation between the two factors. A high correlation has been found.

"The coefficient of correlation ($R = +0.9498$) is very high and shows that there is a very significant relationship between thiamin and ash. (See accompanying chart.) When the ash content reaches about 2.5%, however, the rate of thiamin increase is somewhat less. The three large circles below the curve are three bran duster flour samples that failed to fall into line with the other mill streams. This fact, plus the tendency for the curve to flatten in the high ash range, where there are streams rich in bran, shows clearly that in practical mill operations ash content cannot be used as the sole criterion for selecting high vitamin B_1 streams unless it is known that the streams are not rich in bran tissue."

An important point in connection with this is that the *outer* bran layer, which is high in ash, has a relatively low thiamin content.

In many respects the distribution of riboflavin in wheat is similar to that of thiamin, although the two do not follow identical paths. About two thirds of the riboflavin is contained in commercial feeds. Nearly one third of the riboflavin of the kernel is retained in patent flour, whereas the same product has only about a seventh of the thiamin.

So far as nicotinic acid is concerned, there has not as yet been sufficient time to establish definite typical figures. In early tests, an average of 26.8 mg per lb was found for 55 samples of different types of wheats. The hard springs were generally higher than either hard or soft winters.

Patent flour has a very low concentration of nicotinic acid. Values with a latitude of from 8 to 9 have been found by various workers. . . . The federal standards for enriched flour call for a minimum of 6 mg; a maximum of 24.

Whole wheat, according to analyses of a large number of samples, averages about 0.004% of iron, which is equivalent to 18 mg per lb.

"The iron content of the products of milling is related to the total ash content," Dr. Sherwood writes. "Whole wheat averaging 1.65% total ash was found to contain 0.0037% iron. The iron represents 0.224% of the total ash. All the products of milling do not show this distribution, however. The ash of patent flour and bran have a slightly smaller percentage of iron, whereas the ash of second clear, red dog and shorts have a much higher percentage of iron."

Determinations made in Dr. Sherwood's laboratory indicated that patent flour had about 0.00078% of iron. This, the writer pointed out, is approximately half of the iron required to conform with the standard for enriched flour. This requirement is roughly one third the average iron content of whole wheat.

Results of tests for iron in a series of milled products show that it is not safe to take a fixed per cent of the total ash as the per cent of iron.

Wheat contains calcium and phosphorus as well as iron. The phosphorus is sufficient to be of significance from a nutritional standpoint: the calcium is not. The ratio between the two is unbalanced, calcium being low. A fairly definite ratio between total ash and phosphorus exists—in both whole wheat and in patent flour about 22% of the ash is phosphorus. The ratio of calcium to total ash, however, is not so uniform. In whole wheat calcium is about 2% of the total ash. In patent flour, the comparable figure is 3.5, about.

Calcium is an optional added ingredient of enriched flour. Since the calcium

content of wheat is naturally low, the added factor is far in excess of the whole grain level. The optional requirement is 500 mg per lb—2.5 and 11 times the whole wheat and patent flour levels, respectively.

Speaking of the nutritional picture and the place flour occupies in it, Dr. Sherwood states:

"Wheat has been known for centuries for its nutritional value. For a generation at least it has been recognized that whole wheat flour contained growth-promoting factors not present in the same degree in white or patent flour. New and improved methods for measuring elusive nutritional factors have shown that white flour is not as rich a source of several of the vitamins as whole wheat flour. On the other hand, the latter contains objectionable roughage which many people do not like or cannot tolerate, and yields bread less attractive in appearance than white bread. . . .

"In recent years a few mills have produced specialty flours with enhanced vitamin value. Breads made with these flours have varied widely in vitamin content, and in appearance and flavor. The flours have represented different percentages of the wheat kernel, with or without the addition of vitamin preparations of some kind, and in some cases mineral additions. Not until pure forms of some of the vitamins natural to wheat became commercially available and economical in price, however, was it possible to produce white flour reinforced with vitamins of the B complex. The coincidental rise in public interest in vitamin fortification of foods, and the commercial production of pure vitamin B_1 (thiamin), resulted in proposed modification of flour definitions to permit manufacture and sale of 'enriched' flour. . . .

"There are two methods of making enriched flour. Long extraction flour, representing a much higher percentage of wheat than found in white flour, can be made in conformity with the new standard. This type of flour will require selection and blending of various mill streams, and will yield bread intermediate in appearance between white and whole wheat bread.

"The other method involves the addition to white flour of pure vitamins (or their concentrates) and of mineral compounds. The addition of these substances in the dry state is not a difficult procedure mechanically, but accurate control of the feeding mechanism is essential, and thorough blending of the vitamins and minerals with the flour to form a homogeneous mixture is imperative."

Engineers Put It to Work

MOMENTUM HAS TWO "SIDES"

FORCE due to momentum may be either destructive or useful. A familiar example of its destructiveness is the "knock" developing in the connecting-rod bearing of an automobile engine. At first almost imperceptible, the knock soon becomes a pounding if the play between the crank-pin and its bearing is not properly taken up. A broken rod is likely to result shortly, and in the meantime every bearing of the engine will suffer more or less. For the pounding *is* actually a pounding. When the impulse given the rod by the piston is allowed to proceed without material resistance for even a small fraction of an inch, all the properties of a hammer moved through space with momentum increased by the constant application of force are given to the connecting rod bearing, and the blow that is struck is identical in every way to that resulting from the impact of a hammer on the head of a nail. The only difference is that the nail may be driven in a piece of wood, thus utilizing the force of the blow to good advantage, while the meeting of bearing and journal results in the battering of metal and a further increase in the play between the two surfaces.

That it is not impossible to construct bearings capable of receiving heavy intermittent impulses without developing "play" is proved by the millions of crankshaft assemblies operating smoothly month after month on the gasoline engines of automobiles and the diesels so extensively used today in industry and transportation. It is well known, however, that extraordinary precautions in the way of design and lubrication are taken in connection with such assemblies —precautions which are not practical with respect to milling equipment.

It should be understood that bearings, machines and even buildings are often affected by vibration caused by the in-

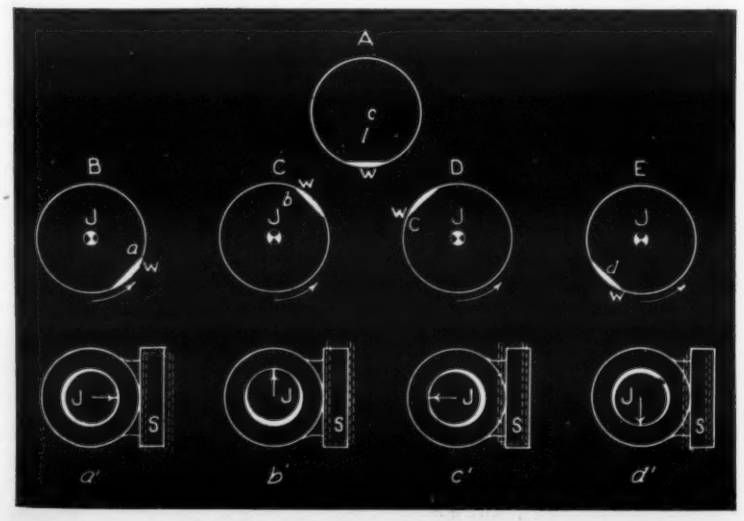

Fig. 1. How an "Out-of-Balance" Rotating Member Causes Vibration

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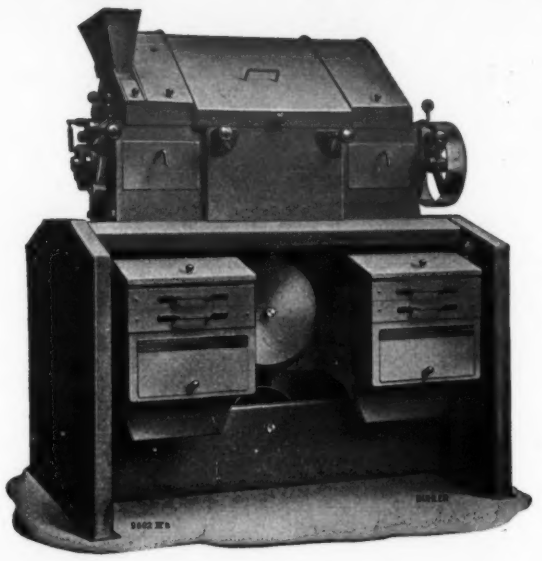

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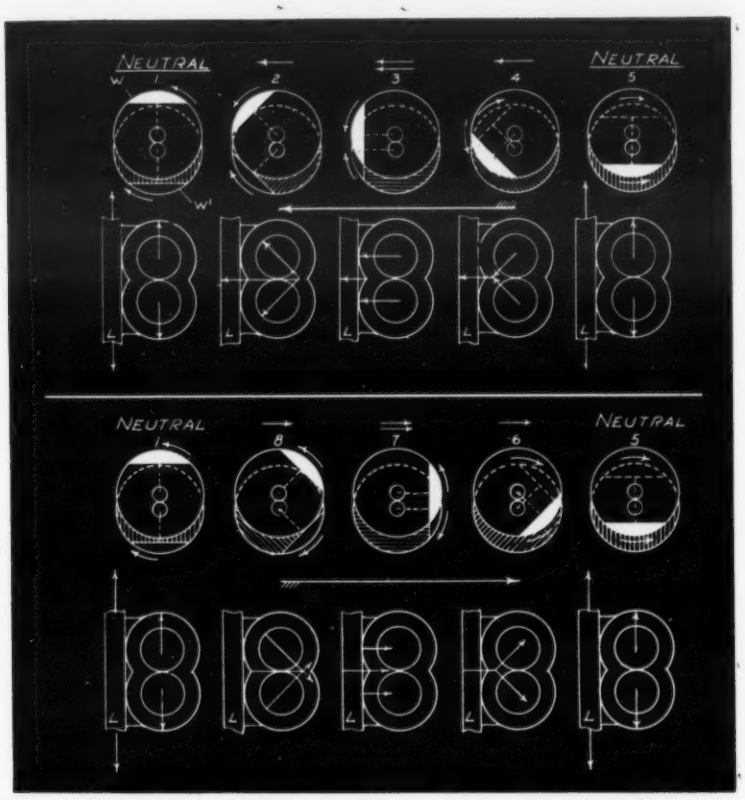


Fig. 2. How the Engineer Puts the Causes of Vibration to Work by Making the Unbalanced Weights, w and w′, Oscillate a Load, L, Smoothly and at Any Reasonable Speed. The Weights May Rotate in Either a Horizontal or Vertical Plane.

ertia of momentum. This may be roughly illustrated by the sketch shown as Fig. 1. The circle under A may be considered a pulley or a roll chill, the segment w representing overweight. The point c may be taken as the fulcrum of a lever arm, l, at the force end of which is w; and if there were no friction at c, the weight would immediately seek the bottom of the circle, as is indicated. If, however, the pulley (or roll) is rotated in the direction of the arrows, as suggested at B, C, D and E, with J acting as a journal, the overweight will set up forces caused by inertia of momentum.

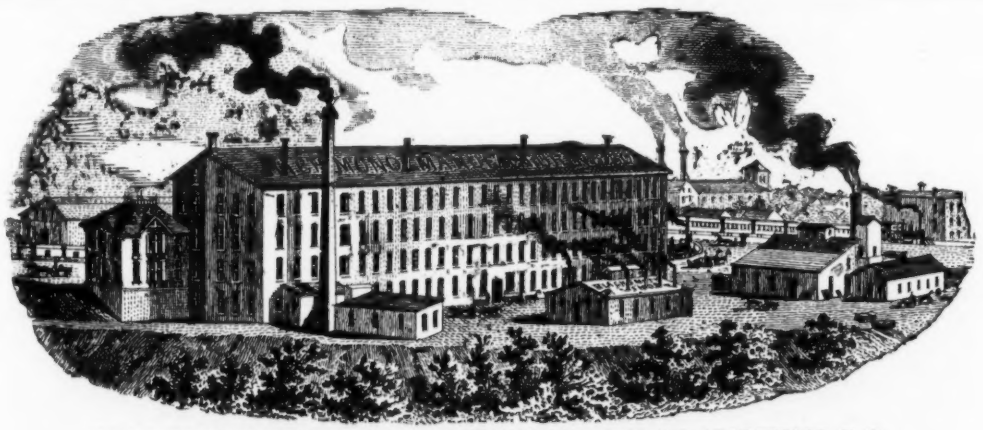
Now consider the journal J as being mounted in a bearing, as in the figures a′, b′, c′ and d′. An exaggerated situation, in which there is a great deal of play between the journal and its bearing, is portrayed, the purpose being to show that as w approaches a (under B) the journal will be thrown against one side of the bearing as indicated at a′, changing the direction in which the force of the momentum of w is exerted in relation to its position under C, D and E. It is evident that the bearing, as well as its support (S), will be affected by this force. The journal does not roll over the surface of the bearing as a roller does along a smooth plane surface; when it is in contact with the bearing it must slide if it is to revolve. Consequently, it takes a short cut in the direction of the straight-line forces acting upon it if the slightest opportunity is afforded and knocking or pounding—vibration—results.

Engineers of the Twentieth Century have taken advantage of the physical laws involved in centrifugal pull and the inertia of momentum (impetus) to tame the destructive forces just described and make them do useful work. This is accomplished by revolving two overweights in opposite directions and journaling both in bearings rigidly attached to the body to which reciprocating motion is to be imparted. These overweight members may be rotated in either a horizontal or a vertical plane; it is only essential that the overweights be exactly equal, that they revolve on equal radii, and that they travel at exactly the same speed, one clockwise and one counter-clockwise. It will be observed, however, by studying Fig. 2 that while the members *rotate* oppositely, both move in the same general direction *laterally* twice during each half revolution (note 2, 4, 6 and 8), while twice during each half revolution the general movement of the two is opposed, and the momentum of one exactly neutralizes that of the other. While the two weights are moving on the left side of their journals (even though one is rotating to the right and the other to the left) the lateral force is to the left, and the load, L, is moved to the left through its stroke. This left stroke, beginning at 1 (above), ends with the weights in a neutral position, as at 5 (above). With the weights in the same position (as at 5, below) the right stroke begins, with the weights both moving in the zones to the right of the journals. As they move from the positions shown in 8 to those shown at 1 (below), the right stroke is finished. The two-stroke cycle is also completed, and the weights are again ready to start a left stroke, as at 1 in the upper drawing.

There are several devices on the market which operate on the principle illustrated in Fig. 2. Among them are the "Eureka-Buhler" drive, the "Juby" and the "Shaler Shaker."

EDITOR'S NOTE.—This article is based upon material appearing in the book, "Studies in Practical Milling." *Published by the Miller Publishing Co., 118 South Sixth Street, Minneapolis. Six hundred and eighteen pages. The price, $6.*

1863



1942

EARLY PRINT OF THE RICHMOND MANUFACTURING CO. PLANT AT LOCKPORT, N. Y.

From Bran Dusters . . . to High-Speed Sifters, "Permaflux" Magnets

The first "Richmond" milling machine—built in 1863 in a small building where the present plant of the Richmond Manufacturing Co. now stands—was a horizontal bran and shorts duster. . . . The most recent is the PERMAFLUX Magnet. Between these—the old "Empire" Horizontal Duster and the new PERMAFLUX Magnet—are many developments that have proved themselves outstanding contributions to the milling industry.

JAMES RICHMOND, a miller trained in England, founded the concern that bears his name when he developed the "Empire" duster. His retirement several years later put the growing Richmond line in the hands of a nephew, William Richmond, also an English miller.

WILLIAM RICHMOND gradually added grain cleaning machinery, upright dusters, aspirators, wheat washers and other equipment—many of the machines now favorably known throughout the milling world.

JAMES RICHMOND, William's eldest son, next took over. With him was William's son-in-law, Howard H. Moyer. These men remodeled old machines and added new ones to the line. "Niagara" Electro-Magnetic Separators, the McDaniel Patent Angle Screen Oat and Grain Separator and the famous "Niagara" Grade Maker Indented Cylinder Separator, were among them.

HOWARD H. MOYER was appointed president of the company upon James Richmond's death in 1937. Since that time the Richmond company has developed the Niagara High-Speed Sifter line from a crude model invented by a miller into a many-unit series, capable of handling from ounces- to tons-per-hour capacities. The PERMAFLUX Magnets are the most recent—but far from the last—of Richmond's contributions to more efficient milling.

NIAGARA **RICHMOND MFG. CO.** LOCKPORT NEW YORK

Beginning a New Series by Dr. C. O. Swanson

Some Physical and Chemical Properties of Starch

STARCH occurs in wheat flour in larger amounts than all other constituents put together. In high protein hard wheat flour the starch averages about 70% of the solids and in low protein soft wheat flour the percentage is about 75. Starch occurs in nearly all foods. By far the greatest amount of food energy comes from starch, with sugar and fat following. About three fourths of the energy value of flour comes from the starch. It is difficult to get average figures for food consumption or to make accurate comparisons among foods because people vary so much in their food habits, and also because foods serve so many different purposes in nutrition. However, on the energy basis it is relatively simple to compare foods, since all foods furnish energy.

The unit of energy measure in foods is the calorie, which is equivalent to the amount of heat required to increase the temperature of one kilogram of water one degree on the centigrade thermometer. The English unit of energy measure is the B.t.u. or "British thermal unit." This is the amount of heat required to raise one pound of water one degree on the Fahrenheit thermometer. One calorie is very nearly equal to four B.t.u. Hence, for practical purposes the figures for calories can be converted to those of B.t.u. by multiplying by four, and the figures for B.t.u. can be changed to those of calories by dividing by four.

The energy value of foods is expressed as so many calories per pound or gram. Starch, sugar and protein have four calories per gram of dry substance. Fat is a concentrated energy food, and it has nine calories per gram dry substance. In measuring the energy value of foods the amount of water present must be considered, since this has no energy value. Foods like potatoes and vegetables have a comparatively low energy value in their natural condition because of the large percentage of water they contain. Energy values are therefore compared on the basis of the dry substance or on a known moisture content. Sugar has practically no water, and its energy value is very near 1,800 calories per pound. Flour, because of its moisture content of about 13%, has an energy value of only about 1,600 calories per pound.

It is difficult to get average figures for the calorie requirements of all people. Men in moderate work require about 3,000 and women require 2,400 per day. For very hard working people the requirements are much larger, and for small children and old people much lower. The average ration for selectees in the United States army training camps allows a little over 5,000 calories per day.

A probable average for all people is about 2,000 calories per day, or 730,000 per year. The average per capita consumption of wheat flour is now near 154 lbs per year, which would contain, on the average, near 113 lbs of starch, assuming that the flour has a starch content of 73%. Since this is on the basis of the dry substance, the energy value would be 1,800 calories per pound, or a total of 203,400 calories.

On the basis of 730,000 total calories per year, the starch in flour furnishes considerably over one fourth of the total energy in the food. The average per capita sugar consumption is about 100 lbs per year, which would furnish 180,000 calories, or some less than one fourth of the total. The sum of these calories, 383,400, shows that over half the energy in the food comes from starch in wheat flour and from sugar. The rest of the energy in the diet comes from starch in other foods, the proteins and the fats. All cereal foods, such as oatmeal, corn products, rice, etc., are good sources of starch, and hence are mainly energy foods. Among vegetables, potatoes occupy first place as a source of starch in the diet.

It may be that the 2,000 calories per capita per day estimate is too low, but even if this is so the figures given show the great importance of starch, especially from wheat flour, in the diet. One main reason for the value of starch in the diet is that its chemical constitution is such that it is readily oxidized, and hence is a good source of energy.

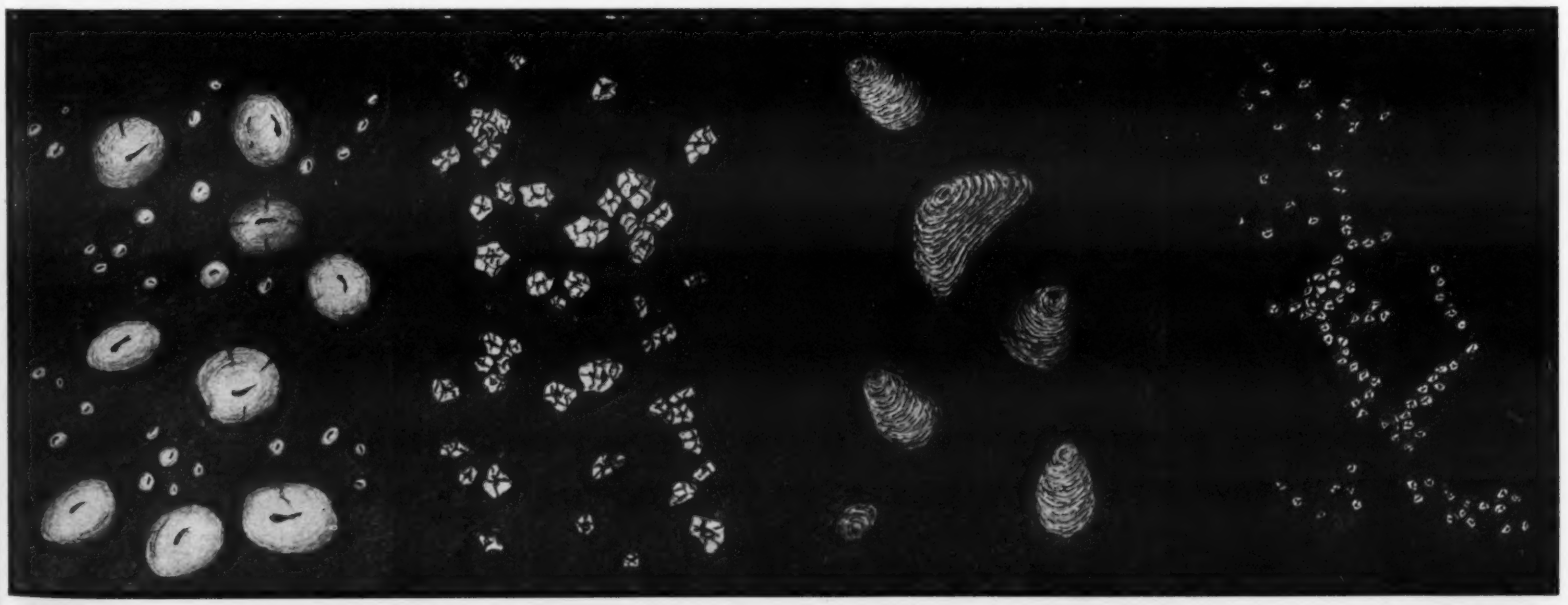
Starch belongs to the class of organic compounds known as carbohydrates. This means that the main elements are carbon, hydrogen and oxygen, and that the latter two occur in the same proportion as in water. In other words the carbohydrates consist of the element, carbon, combined with the two elements contained in water.

The formula for starch is usually written $(C_6H_{10}O_5)\ n$. The formula for cane sugar is $C_{12}H_{22}O_{11}$, and for glucose $C_6H_{12}O_6$. In each case there are two hydrogen atoms for each one of oxygen, the ratio of H (hydrogen) to O (oxygen) being the same as in water, whose formula is H_2O. If we compare the formula of glucose with that of starch it is seen that the glucose has one more H_2O unit for each carbon atom than the starch. Thus, if H_2O is subtracted from the glucose $C_6H_{12}O_6$ we get $C_6H_{10}O_5$. This is the unit in the starch molecule which is multiplied several times as indicated by the n.

Since it is not known exactly how many $C_6H_{10}O_5$ units there are in the starch molecule, the symbol n, meaning an indefinite number, is used thus: $(C_6H_{10}O_5)n$. The value of this n has been estimated all the way from 5 to 200. The best available figure for the molecular weight of starch is about 5,000, which would make the value of n near 31. Armstrong and Armstrong (1934) estimate the $C_6H_{10}O_5$ units from 24 to 30 It is thus seen that the molecular weight of starch is large compared to that of water, which is 18, and that of common salt, 58.5. However, the molecular weight of starch is small compared with that of proteins. These may range around 35,000. Some have values in the 100,000's, or even higher.

Starch contains other elements besides carbon, hydrogen and oxygen. While the formula for starch is usually written

(Continued on page 20a.)



Contours of various kinds of starch are shown here in drawings made from 110-diameter magnifications. At the left is wheat starch. There are no medium-sized granules. . . . Next comes corn (amize) starch. Many of these granules are distinctly angular, making them easily distinguished when mixed with wheat flour. . . . The third drawing shows potato starch. These granules are quite dissimilar to the starch of wheat or corn or rice or rye. . . . Rice starch is represented in the fourth drawing. Much smaller than granules of corn starch, they are also easily distinguished from the smallest wheat starch grains, due to their angularity.

What's Red Dog?

Some Call It Flour—Some Call It Feed—But They're Talking About Two Different Stocks

IN several recent surveys made for the purpose of determining the content of thiamin (vitamin B_1) and minerals (ash) in streams produced in the modern flour mill the term "red dog flour" has appeared. A number of operative millers have raised the question of the identity of this product, since the term apparently is seldom used nowadays. A brief examination of the matter may therefore be of interest.

What was formerly called "red dog flour" is now generally known as "low grade." At the same time, millers often call the lowest grade flour produced "2nd clear." For the most part this 2nd clear is bolted through 13XX or 14XX, and when it is added to the streams making up the patent and the "1st clear" the whole is known as "straight grade," presumably representing 100% of all the flour produced, or about 72% of the weight of the wheat used when 4 bus and 36 lbs are required per bbl.

Often the "finish of the middlings reduction system," from which the lowest grade flour made has been bolted, is referred to as "red dog." This product also includes a part of the tail of the break system proper, for stocks derived from the "dusting" of the bran and shorts usually find their way into the middlings reduction system at least one step ahead of the final operation. After further bolting, either in a centrifugal reel or a sifter section, particles too large to pass through the apertures of a 60-mesh sieve are considered offal and sent to feed.

While it is not intended to give the impression that the procedure outlined is in universal use in America or elsewhere, many commercial mills send the throughs of the 60-mesh sieve to the next to the last reduction rolls. After bolting, the residue may pass to a sieve with apertures a little less than nine thousandths of an inch (9 mils) across—commonly a 72 grit gauze—and although the overs may be bolted again, without regrinding, the size of the particles will still be between 220 microns and about 285 microns (8.8 mils and 11.5 mils) across. The throughs of the 72 will make up the stock to the last reducing operation, and, after bolting, the residue will probably be mixed with the throughs of the 60 (which have passed over a 72) and sent to feed.

This mixture cannot be classed as "flour" under the definitions promulgated by the federal officials responsible for the regulations pertaining to such matters, for under those regulations "flour" must be composed of particles small enough to pass through apertures not larger than 149 microns across. The most authoritative data available indicate that the apertures of a 9XX silk cloth measure 147.5 microns, while those of 9X silk run from 152.5 to 155. The particles passing over a 72 GG will measure at least 217 microns across.

Upon still another count, the "finish" of the reduction system, whether called red dog or something else, cannot meet the specifications for flour. No data relative to the gluten content of this product are available. Probably it is relatively low, for it should be in inverse ratio to ash and the analyses to which reference has been made show the ash content of the so-called red dog flour to be above 2.5%. To qualify as flour the protein content would have to be 43% if the ash was 2.5%. This is hardly likely to be the case.

In milling programs providing a 9XX or 10XX medium for bolting "low grade flour," the product is probably seldom, if ever, included in a "full straight." If there is not a profitable market for it for special uses, such as paste making or for mixing with fine sand in the preparation of "cores" for foundry use, it is ordinarily cut into the tailovers. The whole may then be called "red dog" but not "red dog flour," for the reasons already mentioned. Under the definitions approved by the Association of American Feed Control Officials for grain products feeds it qualifies as "wheat red dog," since it probably consists chiefly of "aleurone with small quantities of wheat flour and fine wheat bran particles" and does not contain more than 4% of crude fiber.

The unusual interest manifested in this product in recent months is due to its high content of thiamin. Data indicate that when the millrun stream of it amounts to about 4% of the weight of the wheat used in producing a barrel of "straight" flour, and when this stream is incorporated with the conventional streams of patent, 1st clear and 2nd clear, the thiamin content of the augmented product will be more than twice as high as that of the straight flour.

——BREAD IS THE STAFF OF LIFE——

Sweet Young Thing—Do you believe in the old saying that marriage is a lottery?

Married Man—I certainly don't. A man is supposed to have a chance in a lottery.

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THE GRIN-MIX

GOOD IDEA

Tom—We are going over to give the bride a shower.

Paul—Good. Count me in. I'll bring the soap.

EVERYTHING ROSY

Neighbor—So your husband has gotten a job at last.

Mrs. Brown—Yes, he has. It's hard work and he says it's killing him, but thank goodness it's permanent.

THAT'S TELLING HER

Mother—What? A 20-page letter from that soldier friend of yours at camp. What did he say?

Daughter—He says he loves me.

HELP WANTED

An excited female voice came over the phone: "Two boys are trying to break into my room through the window."

"Listen, lady, you've got the wrong number," answered a voice. "This isn't police headquarters, this is the fire department."

"I know," she answered, "but my room is on the second floor and they need a ladder."

SIGHTSEEING

A visitor to a Texas city asked the hotel manager what attractions the community offered.

"A helium plant," replied the hotel man. "The only one of its kind in the world."

"My," exclaimed the tourist, "I hope it's in full bloom."

DESCRIPTIVE

Teacher—Willie, what's a duck?

Willie—Just a chicken on snowshoes!

HOME TOO EARLY

Officer (to man pacing the sidewalk at 3 o'clock in the morning)—What are you doing here?

Gentleman—I forgot my keys, officer, and I'm waiting for my children to come home and let me in.

NO, WE WON'T

"Did you enjoy Europe?"

"It was lovely, but the trip over was divine. If you go to Europe don't miss that."

DOG HOUSE BLUES

Cop—Have you any explanation for wandering around drunk at this time of night?

Drunk—Shay, if I had an explanation, I'd have faced my wife an hour ago.

HE THOUGHT NOT

Barber—Will you have anything on your face after I've finished shaving you, sir?

Patron—It doesn't seem likely.

HAIR TODAY

"I'm giving you a birthday present you'll never be able to part with."

"And what's that?"

"A comb."

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New York Cotton Exchange
New York Cocoa Exchange

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WHEAT GETS SICK

Put It to Bed in a Damp Condition, Let It Become a Bit Too Warm—Then Watch Out for Fever—Trouble Ahead!

IN a recent issue of *The Piedmont Bulletin*, official publication of the Piedmont Millers Association, some comments on "sick wheat," by Charles Molin, supervisor of the Virginia Division of Markets, are presented. In some respects they are particularly applicable at this time to the southeastern section of the country, since a great deal of the wheat there was apparently harvested and put in storage under abnormal moisture conditions, but much of the information will be found useful, now or at some future time, by millers almost everywhere in the United States.

Mr. Molin points out that moisture has been an important factor in the grading of the 1941 wheat crop in Virginia and expresses the opinion that some wheat went into storage in mill and farm granaries with moisture contents higher than normal. The warm weather of the summer extended well into the fall, and much of the autumn went by without the occurrence of any considerable cold weather. Such conditions are regarded as furnishing excellent opportunity for the development of "sick wheat," and the writer emphasizes the dangers attending the storage of grain with a moisture content of 14% or above.

Attention is called to the necessity of dissipating the heat stored in the grain as a result of summer temperatures. It is recommended that wheat should be cooled to 60° F., or lower, as quickly as possible, by "turning" it and passing it over separators, or by some other means which subjects it to thorough aeration.

It is pointed out that at temperatures above 60° there is likely to be insect infestation, and that with the rise in temperature accompanying infestation, the development of sick wheat will progress rapidly.

In describing "sick wheat," Mr. Molin brought out that "bin burnt" indicates a late stage of "sickness." It is stated that bin burnt wheat is unsuitable for milling if the production of good flour is the objective. Continuing the description, Mr. Molin said:

"The ash and acidity of the flour [from bin burnt wheat] is increased and the quality markedly decreased. However, the good flour-making properties of wheat have been adversely affected by the development of sick wheat long before the bin burnt stage is reached."

The germ of a healthy kernel is then described as a fatty substance, the extraction of which from the floury parts of the grain is dependent upon the flattening of the germ into disc-shaped bodies. These bodies may be separated from the floury products. "In sick wheat," the writer continues, "the germ tends to pulverize rather than flatten, and separation is difficult if not impossible. The germ becomes slightly depressed, and the coating, of a grayish-brown appearance, rather difficult to detect unless one is on the lookout with an experienced eye.

"If the germ coating is delicately peeled off, the dark-brown to black powdery appearance of the germ underneath, which has little resemblance to a healthy germ, may be seen. The general appearance of such wheat to a casual observer is good, but its milling qualities are disappointing."

WASHINGTON

CLAY

FAMOUS AMERICAN MILLERS

On the pages of our national history are inscribed many names recognized as statesmen and soldiers, but whose connection with the great milling industry is not even hinted at.

In the early days the mill was such a fundamental thing and the miller such an important personage, that the mill became the center of any community.

Small wonder that many of our great men set themselves up as millers, and the mill left its impress on them, carrying many of them to the heights of fame and national esteem.

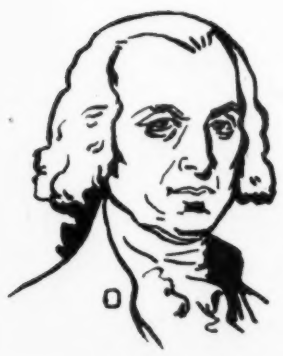
George Washington owned three mills at one time. Thomas Jefferson and James Madison had mills on their plantations which also did custom grinding. Henry Clay, as a boy, worked in a mill. "Stonewall" Jackson ran a mill, which today bears his name, and Robert E. Lee's old estate at Stratford, Va., now has the old mill, which was there during his boyhood, in operation once more.

Mills and millers were an important part of our early history, and modern millers would do well to perpetuate the glorious traditions of the local custom mill.

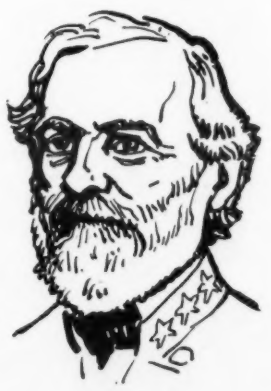
Swiss Silk has had a real part in the operation and growth of American mills for over a century, for when fine bolting cloth was needed, Swiss Silk was specified . . . a custom which millers handed down father to son, and which persists to this day, for wise millers know you can't buy better bolting cloth.

JEFFERSON

JACKSON



MADISON



LEE

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★ Specify "SWISS SILK" ★

Sutter's Mills

(Continued from page 10a.)

who used the wind to produce pure gold from the dregs.

Sutter was greatly dismayed by the unexpected turn of events. It was impossible for one man to control the mania which possessed every inhabitant for miles around, as the news of El Dorado spread like wildfire. The deplorable conditions which followed in the wake of the gold strike sickened him.

He never regained his wealth. Urged by friends, he reluctantly attempted to discover his share of the elusive gold. He set up camp on a stream still known as Sutter's Creek. But his efforts were unsuccessful. Since then the term "Sutter's gold" has connoted false or misguided endeavor.

The lawlessness and prodigality of the California gold rush days is an old story. San Francisco became a metropolis overnight. Public improvements were few. The rainy season made the unpaved streets bottomless pits of mud. One muddy stretch was paved with bags of flour taken from a ship in the harbor.

Sutter spent the declining years of his life in Lititz, Pa., a member of the Herrenhutters, a religious sect which owned large wheat fields and a flour mill. He spent his time trying to regain his share in the lands he once owned.

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YOUR INDUSTRY AND YOUR JOB

REPETITION sometimes serves a useful purpose, but when it is used without due respect for appurtenance it is likely to become "dry." There is danger that this may happen, or has already happened, to the expression, "Food will win the war and write the peace."

Without consideration of the many significant changes which seem to be clearly discernible, the phrase, "Food will win the war," harks back a quarter of a century, and to another great war. Without doubt, food produced in America helped win that war. But with respect to the peace that followed, the situation is not quite so clear. Certainly a great many Americans are determined that nothing shall be left undone to make the peace for which they are now striving and shall continue to strive a lasting one.

It would be enough, then, to say, "Food will make the peace," for we are actually fighting, and shall continue to fight, for the restoration of peace. The power of our food will not end with the booming of the last gun, nor with the signing of the last name to the treaty of peace. There is every reason to believe that it will grow greater for years, for many hold that it will be proved more effective than the power of arms in bringing a cessation of destructive warfare, and that it can be used justly to enforce policies which will make "shooting wars" less probable in the future.

That the processing of foodstuffs is essential to the success of such a program goes without saying, and despite any superficial analysis offered in an effort to prove the contrary, wholesome breadstuffs made from wheat flour are the most essential of all foods. The milling industry is, therefore, an essential industry, not merely in theory but in fact. As such, it has responsibilities that must be met. More than ever now, inefficiency is something that cannot be tolerated in the flour mill—inefficiency of either equipment or men.

There is a surplus of milling capacity in this country; that is well known. It is equally well known, however, that not an inconsiderable part of the equipment representing this surplus is antiquated. As necessity for increased production comes there will be increased necessity for repair parts, and for time out in which to make repairs. Often, replacement with new and modern machines is the only way in which efficiency and economy can be served.

The industry must be able to procure efficient production equipment without delay, now and in the future, and no opportunity to emphasize the importance of milling as an industry positively essential, not merely to the defense of the United States but to the future position of the nation in world affairs, can rationally be neglected. . . . And if efficient machinery is essential to the industry and the industry is essential to the welfare of the nation, efficient man power is even more so. Every mill operative, from the man who sweeps floors and oils bearings to the man who supervises the entire plant procedure, will serve his country best by doing the work allotted to him just a little better than he ever did before.—E. S. M.

Starch

(Continued from page 15a.)

$(C_6H_{10}O_5)n$, the chemical composition is more complicated than that, since careful chemical investigations have shown that starch contains small amounts of phosphorus, nitrogen and fatty substances. The phosphoric acid content is in the range of 0.1%, and this appears to be present in organic combination. The nitrogen content is in the range of 0.035%. The fatty substances are present in small amounts. Some authors have contended that these elements and substances are present as adsorption compounds, but the best evidence seems

Hart-Carter Machines Clean Grain in

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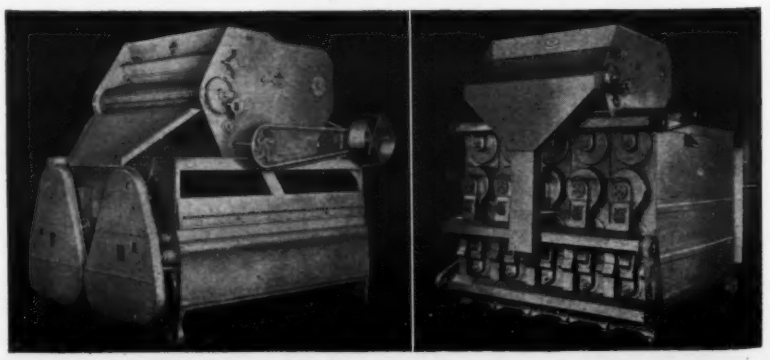
Recently completed, the new Farmers Union Grain Elevator at Superior, Wis., is now busy taking in grain for winter storage—4,500,000 bus of it, when the tall bins which have given the plant its nickname are completely filled. To provide cleaning facilities for this huge intake, five of the largest Hart-Carter cleaning units were chosen. There are three Disc-Cylinder Separators, No. 2564, shown at the left in the photograph, and two No. 45 Hart Uni-flow Grain Separators. They are being used to clean wheat, durum, rye, oats and barley. Both are said to combine maximum capacity with a small floor space requirement. The equipment at the Superior elevator was designed particularly for terminal use, but both units are made in smaller sizes to fit different cleaning needs.



to point to actual chemical combination.

Since nitrogen, phosphorus and several other elements are absolutely essential in the biological processes which form the starch during plant growth, it is not surprising that they should be present in small amounts in the finished product. It may be that some of the complicated and varying reactions of starch are in part due to these elements. That substances present in very small amounts may have pronounced effects is shown by the fact that one milligram of potassium bromate ($KBrO_3$) per 100 grams of flour—which means one part in 100,000—has a very pronounced influence on the loaf volumes and textures.

* *

Starch occurs in plant cells in the form of very small white grains called granules. While starch is present in most plant tissues, it is most concentrated in the seed. The sizes and patterns of these granules vary in different plants, and to a considerable extent the plant source can be determined by microscopical examination. In the wheat endosperm the starch granules have a definite form and pattern, but they vary greatly in size. The form may be described as sphero-crystal or oblate spheroid. The granule appears to have a layered structure analogous to that of an onion. The layers are thicker on one side than on the other, making the general shape of the granule eccentric.

Starch exposed to ordinary humid air contains about 15% water, which means that starch is somewhat more hygroscopic than flour. This difference is probably due to the small amount of fat in flour. Fat does not attract water, while starch does. Hence, fat is characterized as a water repellent. If starch is exposed to a water saturated atmosphere it may absorb as much as 36% moisture, which shows its strong attraction for water. Such water is in the absorbed form, and hence different from the H_2O chemically combined in the carbohydrate molecule $(C_6H_{10}O_5)n$.

* *

Starch is classed as insoluble in water, in contrast to sugar, which is classed as soluble. It seems that when the sugar units, $C_6H_{12}O_6$, unite in those transformations which occur during plant growth, each such unit loses a molecule of water (H_2O); and then the units combine to form starch, $(C_6H_{10}O_5)n$. The result of this combination tends to produce an insoluble product. The characterization of insoluble applies only to the intact starch granules, however. It is possible by appropriate means to separate the material in the granules into water insoluble and water soluble. Each of these portions has been given several names. The water insoluble is generally known as amylopectin and also as alpha-amylose. The water soluble is generally known as beta-amylose, or simply amylose. Alpha and beta-amylose seem to be favored by many writers for the water insoluble and water soluble portions, respectively.

(To be continued.)

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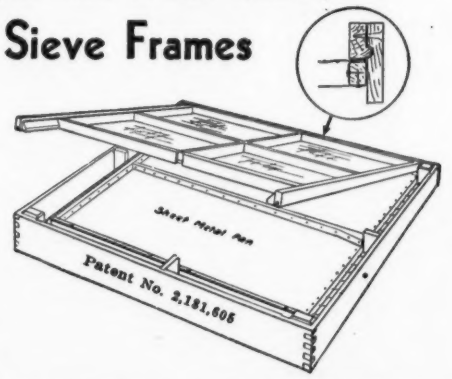

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Baking Characteristics

(Continued from page 5a.)

influencing fermentation characteristics are diastatic activity, granulation, variety-gluten complex, grade, and bleaching agents. Gas production depends largely on diastatic activity. A flour having good diastatic activity is one that produces sufficient fermentable sugar to assure adequate gas production throughout the fermentation process. It is especially important that diastatic activity be at its best when the dough is ready to go to the oven, for it is here that the greatest demand for gas production is made.

Granulation influences fermentation in its relation to diastatic activity. Fine granulation provides more free starch grains (and probably more injured starch) than coarse flour, and therefore provides a better medium for diastatic activity. This is perhaps the principal reason why experimentally milled flours do not have the same gassing power as commercially milled flours. It has not been found possible to add enough malt to experimentally-milled flours to make them gas sufficiently to evaluate the baking value of flours with long fermentation characteristics.

Since each variety of wheat tends to have specific fermentation characteristics which vary within certain limits according to the amount and quality of gluten, it is apparent that the variety-gluten complex is an important factor in fermentation. This factor has been discussed at length under absorption and mixing, and most statements in these sections apply here also.

Grade influences fermentation characteristics of flour in both its gas producing and its gas retaining capacity. The variation of the diastatic activity in the different flour streams causes this factor to be different in patents, clears, etc. The influence of grade on the gas retaining capacity of flour is due to (1) influence of mineral constituents (ash), and (2) to such factors as proteolytic activity, germ contamination, etc., all of which vary in the different streams.

One of the results of fermentation is an increase in the acidity of the dough, for as fermentation proceeds the dough becomes more and more acid. This, in general, has a beneficial effect, in that it furnishes a more desirable environment for yeast development and diastatic activity. The increase in acidity also tends to condition the gluten, or develop it, so that better bread can be produced. There are, however, certain substances known as "buffers," associated with the ash-yielding materials in flour, which tend to oppose increase in acidity. Flour streams in which the ash is high are more difficult to condition than low ash streams. Straight and clears are therefore more difficult to condition than patents.

When all the factors associated with grade that may have a marked influence on fermentation characteristics, and hence on baking value, are considered, it is evident that there is a definite limit to which length of patents may be varied without affecting the baking results of the flour. It is in this connection that the ash test is of particular value. The baker who insists on uniform ash is not using bad judgment. Of course he is interested in uniform baking characteristics only, but he has learned from experience that when the ash varies the baking characteristics are likely to vary also.

Bleaching and maturing agents have a marked influence on the fermentation characteristics of flour. Just how these agents function is involved in a great deal of controversial theory, but whatever their function is, we know they have a marked influence on the baking value of flour and that they work through the fermentation characteristic factor. One has only to compare a loaf of bread baked from an untreated flour with one treated with Agene to appreciate the tremendous importance of this treatment. Chemists refer to the response of a flour to this treatment, as well as its response to other maturing agents, as the oxidation reduction response. Different flour streams show different response; high ash streams require more treatment than low ash streams. Clears are consequently treated more heavily than patents.

Measuring Fermentation Characteristics. Good bread results only when factors responsible for gas production and those responsible for gas retention are adequate and well balanced. The finished loaf, provided it is baked by a procedure consistent with the characteristics of the flour, should be the best measure of fermentation characteristics. The time required to develop the gluten is known as the fermentation time. It varies with conditions, such as temperature, amount of yeast used, etc., but under a given set of conditions it depends on the nature of the flour. When the gluten is properly developed the dough is said to be "matured." If a dough is under-fermented, it is said to be a "young" dough; if it is fermented beyond the point of maturity it is said to be an "old" dough. Bread baked from young or old dough has certain undesirable characteristics, such as lack of volume, poor texture, etc. Flours deficient in diastatic activity also produce poor bread because of inadequate gas production. Such bread is characterized by small volume, pale crust, coarse grain and poor texture. Perhaps 90% of all baking troubles are due to the dough being baked on the young or old side.

Every miller should be alert to bread faults, particularly those that may be due to the fault of the flour. It is a good practice to visit the laboratory each day about the time the bread is out. Particular attention should be paid to signs of old or young bread. Common tell-tale signs of old bread are: coarse grain, gray crumb, sour odor, pale crust, poor oven spring, and worm-eaten appearance of sides and bottom. Common signs of young bread are: soggy, heavy, thick cell walls, gluten bound appearance, smooth sides and sharp edges. Pale crust color is usually a sign of poor diastatic activity and means that the flour has not been properly diastated. Sharp edges and gluten bound appearance are frequently signs of improper bleaching. It is well to remember also that other factors than flour can cause old or young bread, for example, improper mixing, wrong absorption, poor ingredients and baking procedure not suited to the flour being tested.

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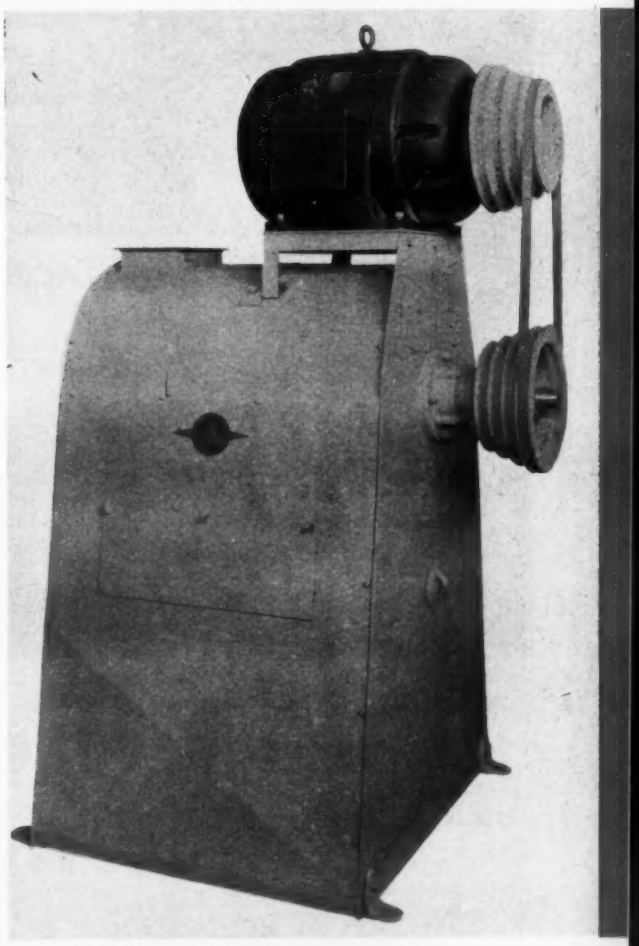

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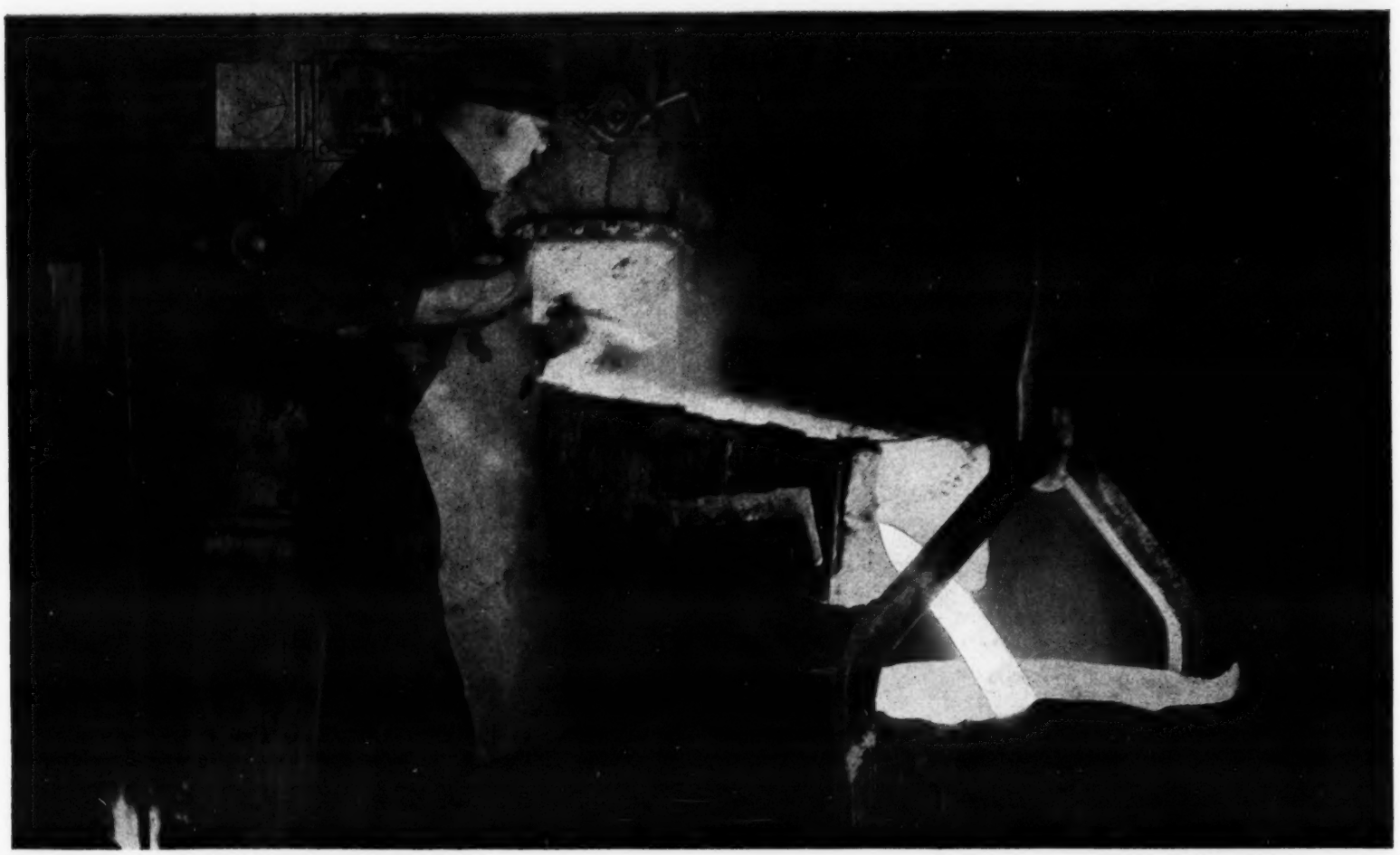

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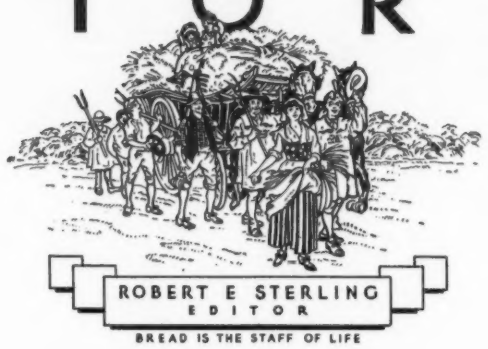
EDITORIAL



A STERNER PRESIDENT

PRESIDENT ROOSEVELT'S commitment of American industry to an armaments production program far exceeding anything yet undertaken by, or even within the capacity of, the nations now seeking to enslave the civilized world is a justifiable and altogether inspiring pledge both to the people of this country and to all of the peoples associated with us. It is further notable because of its containing no "on order" phrases and because the "all out" pledge on behalf of American industry is accompanied by no weasel emphasis upon maintaining our social gains. The message discussed the nation's might and the nation's indomitable purpose without the long familiar admixture of showers of social and economic blessings.

This is altogether as it should be. Not only is it desirable that everything which tends in the slightest degree to impede full-speed-ahead production be suspended, but it is absolutely necessary that all pending differences as to theoretical social philosophies be tabled for the duration. And this particularly applies to the twistings and turnings of exponents of the extreme new deal left, who quite obviously are seeking to turn war conditions to account by planting new seeds of reform to be harvested with the accomplishment of peace. Let no one mistake that the creeping movement to accrete authority for the federal government is an essential part of much that now is going on in the cause and name of the nation's defense.

We hope, too, that the President's plea for stern realism in our war production effort will result in the early disappearance of much of the absurd propaganda to stimulate war consciousness—which, in many recent instances, is merely another name for synthetic jitters. As in the case of most other people eager to do whatever may turn out to be their share in civilian usefulness, we have had occasion to attend meetings about this and that; and we have come to the close of hardly any of these probably-not-important conferences without a certain wonder as to just how much the program under discussion was likely to be of real value and how much was in response to some official or semi-official effort to build up jitters.

The other day our favorite Washington correspondent, speaking of the general public response to tire restrictions and automobile allocations, reported that many people had the feeling of "Oh, we'll get tires when the time comes," and frankly based their confidence in this on recollection of the quick washup of the absurd Ickes closing of filling stations at sundown. As did many other people at the time of that preposterous show-off action, we risked our reputation as a good citizen by characterizing it in these comments as a mere smart-aleck trick, or words to that effect. Now it turns out not to have been mere passing foolishness but to be having its effect upon compliance with current restraints that we must assume are deadly serious.

Yet unfortunately we ordinary run-of-the-bin patriots are quite unable to differentiate. We know in our hearts that those in positions of responsibility are doing their earnest best, and we know too that it is our plain duty to follow them. Yet we also know from their past performances that many things are gestures, trial balloons, stimulants to patriotic fervor, even result from political motives not wholly noble. In this class, as we read it, was a noisy forewarning of the commandeering of private motor cars within the next year or two. Admitting the possibility of that having some time to be done, it is difficult to see what smallest thing was accomplished toward our war effort by causing needless jitters among many easily frightened people two years in advance of an altogether supposititious event.

It may be that in England, seasoned veteran both in war and in the proper use of public opinion, these artificial jitters have been a stimulant to some useful accomplishment. Yet in all of the war news from that sorely tried but incredibly courageous land—notably also in the *London Times*, which we regularly read—we have seen no smallest suggestion of organized frightening of people. On the contrary, from the very beginning we have observed only evidences of that sane, sure, relentless, bulldog courage which has held Britain steady, made her unconquerable—the sort of thing recently made so clear to us by Mr. Churchill's utterances and acts.

Perhaps it is best to assume that our own efforts to stimulate jitters as a means of building morale do not emanate from the high places but come to us only from the understrappers in love with unaccustomed authority and enamored of seeing their names in the headlines. Anyway, for our own part, we are deriving considerable comfort and are assisted materially in maintaining a reasonable balance by believing this to be the case. We may, it is true, need to have eight bomb raid wardens in our suburban block, with its total population of seven persons, but for the time being we are just going to assume that to be an idea that someone thought up and not worry about it; at least not worry about it any more than we are worried about constantly having our whole war effort described exclusively in terms of so many billions of dollars. That, at least, has the possible merit of scaring hell out of the enemy, while many of these other things that puzzle us seem to be designed only to scare the hell out of us.

Anyway, we read into the President's address to Congress last week greater discernment, more sternness of purpose, more of determination to be a real leader of a united people—industry, forgotten men, labor radicals, under-privileged, *all* people—than has been present in any of his previous declarations.

——BREAD IS THE STAFF OF LIFE——

PARITIES AND PRICE INCENTIVES

SECRETARY of Agriculture Wickard's recent statement before the Senate Committee engaged in consideration of the Emergency Price Control Bill constitutes a well-reasoned defense of his proposal that authority over prices of all basic agricultural commodities should be exercised by his department and not, therefore, be subject to the fixing of floors or ceilings by any other agency of government. Elaborating, he proposed that agricultural producers' prices should be based on so-called parity but with an operating leeway up to 15% above parity and liberty further to increase grower returns in special cases.

There is a certain reasonableness to the Secretary's insistence that his department knows more about this business of producing food and fiber against war needs than any other agency of government possibly can know. In his argument for his thesis, however, he unquestionably takes considerably more than fair and logical credit for such devices as ever normal granary and farm subsidies than the record of the Wallace regime justifies. Current stock piles of wheat, cotton and animal feeds are by no means due to the far-seeing wisdom of the "farm program" but are merely the backwash from unmanageable surpluses which the government spent billions trying to hide. That they now are blessings does not lessen the fact that two years, even a single year, ago they were monumental evidences of political chicane and economic stupidity.

That, however, fortunately is water over the dam. The present question and the one to which Secretary Wickard addressed himself is whether agricultural commodity prices should come under control of Mr. Henderson's far-reaching authority or should be isolated from such control in order that the Department of Agriculture may use prices, stocks, regulations, subsidies and so on to insure maximum production from all our resources of land, farm capital and available labor. He suggests in effect that agriculture should be a separate and largely independent, though fully co-operative, division of our total war effort with a view particularly to encouraging production by continuing incentives of price.

That may, indeed, be the very best way to handle the situation. Yet if agriculture is thus given title to right of separate treatment and management, little could logically be said against labor being given an independent franchise to juggle its own rates above "parity" to encourage maximum production; or that industry should not similarly be the beneficiary of price incentives to encourage it to do its best. Certainly, as things now stand and despite all of the ugliness of recent months of labor warfare, there is no recognized "above parity" basis of wages and salaries considered as a whole, even including the politically favored sector of organized labor.

When, thereafter, we turn to industry and the incentive of price or profit as applied to it, we find that instead of earnings being an incentive to production—as Secretary Wickard argues in behalf of agriculture—they not only are at such low ebb that many equities hardly can be given away but all industry is constantly under the guns of suspicion and abuse for present or potential profiteering. Indeed, the same news columns which tell us of the plan to supply new price "incentives" to agricultural production tell also of numberless prohibitions of industry against adding the amount of those "incentive" prices to the costs of processed commodities.

This is far from making sense. Simple fairness clearly requires that if there are to be "incentives" to insure greater production of grains, feeds, fiber, meats and dairy products, the industries which process and distribute these products should not be compelled to operate in a virtual blackout fog of regulations.

We doubt if ever in all the world's history there were a hundred and thirty million people so eager to comply with the smallest order of government to the end that all may be done to preserve this nation against present threats of its future. In that very circumstance there is multiplied reason for insuring equal treatment to all and distributing "parities" and "incentives" with even-handed justice—or not at all.

——BREAD IS THE STAFF OF LIFE——

MR. HELM TO THE HIGH COMMAND

THE milling industry is especially fortunate in having available as wartime president of the Millers National Federation a man of the fine intelligence, clear understanding, long experience and, above all, fairness of mind of Mr. Willis C. Helm.

He himself doubtless would dispute it, but unquestionably he has clearer title to being dean of the industry than any other miller. We ourselves have many times observed conferences of millers become confused by expressions of not very clearly thought out opinion until finally someone would call on Mr. Helm. Almost immediately he would clarify the situation by a modest, temperate and straightforward statement, and the solution would follow.

Through this year and the next and possibly other ensuing years, the milling industry is destined to be more and more an essential part of the vast machinery of war. Inescapably direction by government will increase and the need for full co-operation, not without material sacrifices, will grow as the war marches. These relations with government will require cool heads, clear thought, intelligent decisions and unquestioned fairness.

The federation must serve as spokesman not for its members alone but for all millers, great and small, and in every part of the country. Fortunately its working staff, with especial reference to Mr. Steen and Mr. Fakler, is exceptionally capable and has earned by its own performance, recently under the guidance of Mr. Magill, retiring president, the complete confidence of the entire industry. Now, with Mr. Helm's selection, the organization goes forward with all millers trusting it and solidly behind it.

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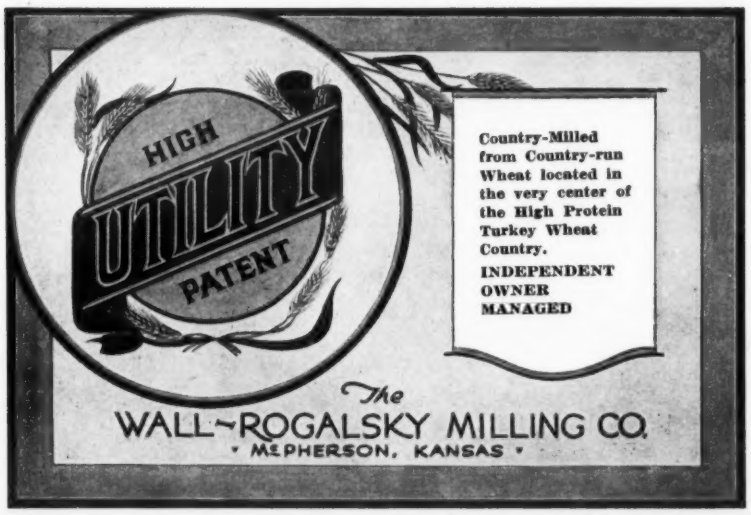

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Established 1877

GREAT BEND, KANSAS

An Ancestor of the New Deal

By Charles R. McClave

President of the Montana Flour Mills Co.

THE term "The Sentimental Years" has been applied to that period 100 years ago when numerous well-intentioned intellectuals sharply criticized the then American mercantile system and suggested various proposals for its replacement. Among these were Ralph Waldo Emerson, whose essays first appeared in 1841; Albert Brisbane, father of Arthur Brisbane, former contributing editor of the Hearst papers, who sponsored a communistic program which was tried and met with failure; one Joseph Warren, who conceived an economy founded on a negotiable script known as "labor notes" or "sweat money," and many others, including Clinton Roosevelt, a progenitor of Theodore and Franklin Delano Roosevelt. Like his descendants, Clinton Roosevelt was a theoretical humanitarian who strove to bring about a social and economic order which he conceived to be better than the one into which he was born.

Mention of this rare and interesting book in a recent publication prompted the desire to read the volume, a copy of which was found in the public library of the City of New York, reference division, Fifth Avenue and Forty-second Street. Its perusal left the impression that Clinton Roosevelt's theories may have had an important influence in shaping the thought and aspirations of his descendants. He proposed a "new deal" as far back as 1841 in which no human desire, including the desire for change was overlooked. He sympathized with the communistic objectives, but questioned their practicability and defended the so-called "profit system." He condemned the protective tariff. He affirmed the value of regimentation and proposed to divide all commercial, industrial and professional activities into groups or divisions to be administered by "marshals" who were to have numerous assistants. There were to be three major groups, the first to include agriculture, commerce and manufacturing; the second, war, law and medicine; the third to serve the arts, literature, moral philosophy, natural history and allied social needs. Subordinate lieutenants or "engineers" were to be charged with responsibility for the processing and sale of foodstuff, the manufacture and sale of textiles, metals, drugs, etc. He delegated moral, cultural and economic authority and responsibility to an extent that would bring acclaim from intelligentsia planning like administrations of these functions in the present social order. Merchants and manufacturers were to be given licenses permitting sale of their wares at prices to be determined by a "board of appraisal." Wages were to be paid by "bills of exchange" reading, "On demand the eclectic association promises to deliver bearer the produce of one day's labor."

Clinton Roosevelt had no confidence in the economic theories of Adam Smith as these appear in "The Wealth of Nations." He was confident that his program would provide that measure of happiness and social security that has been the objective of mankind since the beginning of time. The social and economic order of his time refused to accept his theories and they have been mellowing in the cobwebs of passing years until those whose mental processes find expression along the same general lines have dusted them off to provide a "new deal" 100 years later.

EDITOR'S NOTE.—The foregoing article by Mr. McClave is reprinted from a current Montana Flour Mills Co. bulletin to the trade.

—BREAD IS THE STAFF OF LIFE—

Is Nutrition Program Bogging Down?

From *"Food Industries"*

IT must be apparent, even to the Federal Security Agency, that something is wrong with the new national nutrition policy so enthusiastically launched by the National Nutrition Conference for Defense in May, 1941, under the aegis of Dr. Russell M. Wilder. If Dr. M. L. Wilson, whose function it is to spread the gospel, or Dr. Thomas J. Parran or Paul Cornell took note of the character of the audience at the recent convention of Associated Grocery Manufacturers of America, they must have become aware of an important symptom. During the afternoon devoted to the nutrition program, the audience was not more than half capacity, and two thirds of those present were domestic scientists, writers and the like. Food manufacturers were a small minority, and those who stayed to the end looking for tangible ideas failed to find them.

They heard that there is "plenty of gold in them thar nutrition hills for everybody." They heard that only "natural" foods are needed by the people for adequate nourishment, that enrichment is but a passing episode, not to be depended on in the long run. And they heard that the vitamin theme song is passé. Also that the customary advertising method is not the correct method to sell nutrition, that nutrition advertising is not brand advertising. As we sum up the results of that session, the food manufacturer is apparently expected to help sell the public on better eating but should encourage people to eat only natural foods (by the way, what is a *natural* food?) and should never put in a plug for the manufacturer's own contribution to improved nutrition.

In other words, the manufacturer appears to be expected to donate costly advertising space or radio time to encourage the public to consume unbranded food, a form of altruistic generosity that is unlikely to find enthusiastic response.

If the gentlemen from Washington noted the character of the audience and the absence of the bulk of the manufacturers, they must surely have realized that manufacturers were not particularly interested in listening further to a confused plan.

Plainly, if the Federal Security Agency expects noticeable co-operation from the food industry, it must be supplied with a plan of co-operation that is sound from both viewpoints. There is need for more searching inquiry and long-range thinking in Washington if the National Nutrition Program is to go forward with the support it needs.

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FOR QUALITY, FLAVOR AND ECONOMY
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THE BUCKEYE CEREAL COMPANY
MANUFACTURERS OF
Hard and Soft Wheat Flours
Buckeye Balanced Ration Feeds
Massillon, Ohio

From the Letter File:

"I believe THE NORTHWESTERN MILLER is without doubt the most widely distributed journal of its kind in the world. It certainly is widely read and carries a great deal of prestige and influence, so that any technical article that might appear in its pages would at once command attention."

Russia

(Continued from page 23.)

dispossessed of their property interest and of joining an already large and constantly increasing proletariat, yet at the same time begging humbly and piteously for the bare food necessary to maintain existence—this is the strange and anomalous sight which today is presented to the world in the naturally arable district lying within the valley of the Volga. That this has come about primarily from the defective system under which the land is held is undoubtedly true. It is also true that the Russian peasant does not cultivate the land thoroughly under any circumstances, that his methods are primitive and his implements medieval. Still, the force of example might lead him to improve his methods were his individual ambition encouraged by a different system of ownership. Under the present conditions he sees simply as far as the season's work, which practically ends his connection with the land he is tilling.

Fundamentally wrong in its root, the growth of 30 years, which finds its flower in a famine, was hampered and hindered by adverse circumstances too numerous to be referred to here at length. Parasites fastened themselves upon its body and contributed to its decay. The newly liberated serf, left to himself largely, was free to make his own future, subject, of course, to well-defined limitations; but to the work of development he brought an irresponsible, thriftless, improvident disposition, and a naturally good but utterly untrained intellect. He had his hands to himself and his land; he was trained to work, but not to think. Hence the village usurer, the "koulak," the "mir-eater," found a ready victim for his schemes, and, naturally, the peasants as a class became subject to the rapacity of money-lenders, petty officials, small traders, and all the varieties of human vermin which in Russia, as in our own country, fatten on the credulity and the financial ignorance and shortsightedness of those who have the capacity to work, but not the brains to figure.

Even originally the apportionment of land per head was but small, not more than enough to maintain the peasant in the most primitive manner. As the family grew and the sons arrived at maturity, the land belonging to the commune had to be subdivided, so that each might have a share. Thus, beyond the discouragement of the system itself and the impoverishment worked upon the peasant by the village usurer and others, the natural reduction of the land which he was permitted to till and enjoy the fruits of, when there were any to enjoy, was great. Today the peasant, forgetful even of the pangs of hunger and the ravages of pestilence, clamors above all for more land, even though what land he already has is but half cultivated. It is apparent that the increase in population and consequent reduction in village land per capita would, sooner or later, have brought the peasant perilously near to hunger, even if he had been accustomed to modern methods and machinery. Without them, the inevitable result has been hastened. Short crops and partial famines became more and more frequent; the stores, if there existed any, were more continually drawn upon. They reached the danger line, fell below it, and finally became exhausted.

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OFFICIALS CONFER WITH MILLERS, BAKERS ON VITAMIN FLOUR

Millers Maintain That Order-in-Council Requiring Vitamin Content of 400 Units Cannot Be Carried Out, Suggest 360-Unit Limit

TORONTO, ONT.—Representatives of the Canadian National Millers Association, the Ontario Flour Millers Association and the Canadian baking industry met in Ottawa on Jan. 5-6 for the purpose of surveying the proposals of Canadian food control authorities as to the composition of flour and bread in this conutry during the war period. Later they assembled in joint session with the control authorities for discussion of proposals decided upon at the initial meeting.

J. J. Page, controller for the milling industry, opened these sessions and presented the subjects to be discussed. Later, he turned the meeting over to Norman Davis. The immediate purpose of this meeting was to clear up misunderstandings which had arisen in the minds of millers and bakers as a result of unfortunate wording of an order-in-council dated Dec. 10, 1941, by which changes in the vitamin content of Canadian bread were provided for. This order-in-council was to become effective on Feb. 1.

In the earlier stages of this conference the millers made it clear that the order-in-council of Dec. 10 as worded could not be carried out. Canadian mills are not equipped to produce such flour as is required nor could they get the necessary equipment within anything like the time limit named. A part of the government proposal is that white flour with vitamin content of 400 units or better should be put upon the market and labelled "Canada Approved" for general public consumption. Together with this a whole wheat flour bearing a similar label should be produced and offered to the public.

At these meetings millers and bakers maintained that the vitamin content of bread must be within the limits of what could be guaranteed in a white bread. The proposed loaf must also be acceptable to the public and likely to be bought by a high percentage of consumers. Some of the control authorities are in accord with the millers and bakers in this contention and it appeared from the general results of these meetings that a new proposal will be formulated for further consideration of the trades concerned.

The millers' suggestion is for a flour containing not more than 360 international units of B_1 vitamins, instead of the 400 which has been proposed by the government. Mills can produce a reasonably good white flour of that vitamin content, but if 400 units are insisted upon they are doubtful of its acceptance in the form of bread by the consumer.

As showing the complicated nature of the problem set for itself by the government of Canada when it undertook to increase the vitamin content of the bread commonly consumed in this country, it is now being pointed out to the control authorities that if the vitamin content of flour is raised to 400 units per pound loaf the millfeed derived from production of such flour will be below the minimum standard set for these products by another Canadian law.

It is also to be noted that since the new loaf would call for a lot more milk than is at present being used by bakers those control officials who know about milk say it will be impossible to secure enough in Canada to meet such bread requirements.—A.H.B.

——BREAD IS THE STAFF OF LIFE——

MILLS FIND PURCHASERS FOR DISTRESSED CARGOES

VANCOUVER, B. C.—Principal interest of Canadian flour exporters during the week was centered around the disposal of flour shipped from here to far eastern ports prior to Dec. 7 and which was prevented from reaching its destination by the Japanese attack.

While most of the developments in regard to the disposal of this flour were shrouded in official wartime secrecy, it is understood that negotiations have been or are being completed by the mills to sell the great bulk of these supplies to allied governments around the Pacific. No mention was made of price, but it was understood that the figures were close to current levels.

This Canadian flour, most of it consigned to Chinese buyers in Shanghai and Hongkong, along with some parcels for Manila, is now lying on docks at widely scattered Pacific ports. In addition to that owned by the mills there is also a substantial quantity of which ownership still rests with the banks, which also are working to protect their interests.

In the meantime nothing more is being put afloat here, and in fact there have been no new orders since the commencement of Pacific hostilities. Later on, as the allied groups assemble increasing numbers of troops in the Far East, Canadian mills will likely be called upon to supply them with flour.

A situation has developed here which is causing some careful study. One of the ships which was turned back to this coast when war broke out in the Philippines is the MS. Granville. During the week she discharged all her flour cargo here and included in the lot is a shipment of 12,000 bbls of American flour.

Under Canadian regulations it is impossible to dispose of this flour here without a special order from the Canadian Wheat Board. It will be remembered that late last fall the government finally shut off American flour imports on the grounds that Canadian funds must be conserved for the purchase of war material and some efforts are now being made to carry out the same tactics in regard to the new American flour landings. So far no decision has been rendered by the wheat board.

——BREAD IS THE STAFF OF LIFE——

ONTARIO BAKERS' GROUP WILL MEET AT TORONTO

TORONTO, ONT.—The Ontario Bakers Association will hold its annual conference in Toronto in January. The exact date has not yet been fixed but will be announced shortly.

A committee to take charge of this event has been named as follows: L. D. Jackson, Hamilton; H. Carpenter, Brantford; C. Cotter, Ontario; William Henderson, Leamington; William Henderson, Jr., Waterloo, and R. H. Ackert.

Trade leaders realize that perhaps never before has there been such need for unity and co-operation in the industry in order to overcome the many problems arising from time to time as a result of wartime regulations. There has been little unity among the various baking associations existing in the province, but the necessity for the appointment of one representative body to speak for all the bakers of Ontario is now recognized by the trade.

The administrator of the baking industry has hinted that such an arrangement would simplify and expedite his work and would be more effective. The bakers of Ontario will have an opportunity of appointing a representative committee for this work at the forthcoming convention.

——BREAD IS THE STAFF OF LIFE——

CUSTOMS DUTY REDUCED

TORONTO, ONT.—The Canadian trade commissioner at Bombay reported under date of Nov. 12 that the Indian government had reduced the customs duty on imported wheat from 1½ rupee (about 50c) to 2 annas (about 4c) per cwt (112 lbs). Apparently the price of wheat has been rising rapidly on account of keen demand from several markets in the Middle East and there have been no wheat imports into India recently. For that reason it is expected that only limited quantities will be available occasionally for import. The government has recently announced its decision to fix the maximum at rs. 4⅜ per 80 lbs.

——BREAD IS THE STAFF OF LIFE——

BAKERS NOT YET PREPARED TO SUPPLY VITAMIN BREAD

VANCOUVER, B. C.—Some confusion has arisen among local bread manufacturers as to the actual date for making the new vitamin B_1 bread. The original plan as arranged by national health officials at Ottawa in conjunction with the milling and baking industry was to commence the style of health giving bread on Feb. 1, but latest advices received here indicate that the order will be held up until April 1. So far only a few Vancouver bakers have made baking tests with the new flour and it is quite possible that the proposed two months' postponement is due to Canadian mills being unable to get sufficient supplies ready by the original date.

CEREAL IMPORT COMMITTEE TAKES RUSSIAN PURCHASE

TORONTO, ONT.—The flour which had been sold to Russia some weeks ago and which was cancelled following the outbreak of hostilities in the Pacific has been purchased by the Cereal Import Committee. The flour had been held up previous to the Pacific war because of lack of shipping space. Then with the Pacific war stopping all shipping to the Far East, the purchase was cancelled.

EXPORT BUSINESS GOOD TO UNITED KINGDOM

WINNIPEG, MAN.—Good export business to the United Kingdom featured the flour trade last week. Estimates place sales at equivalent to 1,250,000 bus of wheat.

GOES TO OTTAWA POST

Economist with James Richardson & Sons, Ltd., for the past four years, Mitchell W. Sharp has left Winnipeg to take over duties with the Department of Finance in Ottawa "for the duration." He was a member of the staff of Sanford Evans Statistical Service, Winnipeg, for 10 years. Summaries of the frequent reviews written by him for James Richardson & Sons have appeared in THE NORTHWESTERN MILLER from time to time.

European

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25% of Britain's White Flour Now Fortified With Vitamin B_1

LONDON, ENG.—The use of fortified flour in bread was at first confined to a small area in South Wales, but it was stated in Parliament a few days ago that practically 25% of the white bread flour in this country is now fortified with vitamin B_1. The idea seems to be prevalent in Canada, and possibly elsewhere, that all the bread flour now being used in Great Britain is of the enriched or fortified character, but this is by no means the case, as confirmed by the above mentioned statement in Parliament.

When the government decided to fortify white bread flour with the addition of synthetic vitamin B_1, there was only one plant in this country to manufacture the synthetic product. Others had to be built or have the necessary machinery installed, and this perforce was a slow business in war-time when the one outstanding vital necessity is the production of munitions, which necessity takes priority over all other interests.

It is understood that a considerable amount of synthetic vitamin B_1 has been imported from the United States, but a further delay is being experienced by the mills having to wait for installation of the necessary machinery for adding the concentrate to their milling grist. The Novadel machine for this purpose has been recommended by the British Millers Research Acreage for this purpose and accepted by the government, and this machine is being installed in mills as fast as conditions will allow. However, it will probably be another 12 months before all the mills are equipped with the necessary machinery for producing the fortified flour.

LOST INTERNATIONAL TRADE TROUBLES LONDON EDITOR

LONDON, ENG.—"One of the most unfortunate effects of our being engaged in a European war is the injury done to our international trade," says the editor of *London Corn Circular*. By "international trade," he explains, he does not mean the entrepot trade of ports such as London and Hull, but the position of London as a banking center and of the United Kingdom as a market for insurance, ship chartering, etc.

Among the many useful purposes which these markets served, he goes on to say, was the buying and selling of grain cargoes and parcels shipped from various exporting countries to various importing countries, not necessarily to the United Kingdom itself. Though much of this business was interrupted during the last war, he points out, there was a healthy revival during the immediate post-war days, which, however, lost much of its force when the 1930-35 depression developed, and only partially recovered subsequently.

There was, however, one branch of the grain brokerage business which kept its head well above water, namely, the Liverpool futures market. Circumstances favored the utilizing of the Liverpool market by grain holders and traders all over the world. On the outbreak of war that market had to cease operations. Since that time the Chicago, Winnipeg and Buenos Aires markets have continued to function, as well as several other grain centers in the United States, but from time to time Winnipeg has been at a standstill owing to prices resting on fixed minima while grain values in the United States are on a domestic and not an international basis. Furthermore, the Buenos Aires market ceased to operate on orders from the Argentine government recently.

BRITAIN AIMS TO INCREASE PRODUCTION OF U. K. FARMS

LONDON, ENG.—This benediction, "May God speed the plow," was bestowed on the farmers of the United Kingdom by Premier Winston Churchill as part of a message read by the minister of agriculture to a mass meeting of farmers, farm workers and land owners at Norwich, in East Anglia. The message follows:

"Never before have farmers and farm workers carried such a heavy responsibility as you do in this struggle. Never before have you responded to the country's call as you have done in the last two years. It is due in no small measure to the efforts you have made, in spite of many difficulties, that we find ourselves today in a better position on the food front than at any previous time since the war started.

"But there can be no relaxation. Far from it. The enemy's attack at sea will be intensified. The situation demands from each one of us still greater efforts, still greater sacrifices, than we have yet made. Ships that would have brought food to our shores must now be used to meet the urgent needs of ourselves and our Russian allies for airplanes and tanks. You can release more ships by growing still more food in this country and so hasten the day of victory. May God speed the plow."

After delivering this message the minister of agriculture, R. S. Hudson, surveyed the splendid work that had been done this year and urged greater endeavor for the coming year. He said that by the prodigious efforts of all concerned the country had virtually managed to make good in 12 months nearly the whole of the losses in imported feedingstuffs. With prudence, the imports during the third year of the war might be even less still. The United Kingdom had 16,000,000 acres under the plow and plans were in process of showing yet a further increase of arable land during the coming year. The government had made arrangements for the supply of even greater quantities of most kinds of fertilizer. The generosity of the United States was helping powerfully with supplies of phosphatic fertilizers. He said the farmer of the United States was going short to help this country. On the other hand, our own efforts were responsible for increasing supplies of nitrogenous fertilizers and for expanding the production of lime.

He went on to say that the aim of the ministry of agriculture was to have the greatest possible acreage sown to wheat this autumn. Wheat was the sheet anchor of the nation in war time. Thought also should be given to protein supplies for livestock in the winter of 1942-43 by sowing winter beans. They must also plant more sugar beet and potatoes and fill the sugar factories to their utmost capacity next year. To dairy farmers he said:

"Do everything in your power to maintain milk production this winter. Every gallon counts."

Mr. Hudson pointed out to his audience that even after hostilities came to an end and Nazi power had been destroyed once and forever, it would be many years before Europe returned to a state of order. The specter of famine, if not actual famine itself, would stalk over Europe for many years to come. If that specter were to be allayed it would be necessary to call on the resources of the over-sea countries to feed Europe, which meant that the United Kingdom would have to maintain its present output of food for a long period after the Nazis were destroyed.

——BREAD IS THE STAFF OF LIFE——

CLAIM OF FLOUR SMUGGLING FROM NORTHERN IRELAND

LONDON, ENG.—The parliamentary secretary to the ministry of food, Major Lloyd George, answering a question in Parliament, said he was not aware of any shortage of white flour in Northern Ireland. The last analysis of flour stocks in the hands of millers and importers showed a considerably higher stock per head of the population than the average throughout the whole of the United Kingdom. Major Lloyd George confirmed reports that white flour had been smuggled across the border from Northern Ireland and said steps had been taken to stop the movement.

——BREAD IS THE STAFF OF LIFE——

DEATH OF W. T. CALDERWOOD

LONDON, ENG.—The death occurred on Nov. 24 of William Thomas Calderwood, O.B.E., M.C., B.Sc., the managing director of Thomas Hedley & Co., Ltd., Newcastle-on-Tyne, following an operation. His firm formerly handled imported flour from the United States and Canada.

Mr. Calderwood was a graduate of London University and started his business career with the Port of London Authority. During 1914-18 he served with the British Expeditionary Force in France and with the Army of Occupation in Germany, holding a commission in the Royal Engineers. He retired with the rank of major and was awarded the Military Cross and Bar for distinguished services.

After leaving the army in 1919 he became chief engineer at the Newcastle works of Thomas Hedley & Co., Ltd. Later he became general manager of the company and finally managing director. He took a great interest in the civic life of Newcastle and from November, 1940, to November, 1941, acted as deputy lord mayor. He was only 48 years of age at the time of his death.

——BREAD IS THE STAFF OF LIFE——

BRITISH TRADE IN FLOUR QUIET

LONDON, ENG.—Trade in flour has been quiet of late, which may be due to the effects of the order of the Ministry of Food respecting bread prices. As reported in THE NORTHWESTERN MILLER of Oct. 29, the baking trade was incensed over the terms of the order, and instead of the regular intake of flour in proportion to weekly baking requirements, which is the usual custom, there was a tendency among bakers to draw on reserve supplies, which the Ministry of Food has always urged bakers to carry on their premises. This phase passed and was followed by more liberal takings. Now, apparently, another period of restricted deliveries is being experienced.

• JOINS R.C.A.F. •

Frank E. Kelly, formerly a clerk in the office of the Ogilvie Flour Mills Co., Winnipeg, Man., is now in pilot training for the Royal Canadian Air Force. He joined the company in 1937 and enlisted Feb. 11 of this year.

As fine a flour as you will find milled from the finest Turkey wheat in the heart of Kansas in

An Independent Mill

WOLF MILLING CO.
ELLINWOOD, KANSAS

American Ace

—A very fine, short, strong patent milled in one of the West's very finest flour mills.

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Capacity 800 bbls — CHICKASHA OKLA. — Cable Address "Washita"
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FAMILY FLOUR
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DIXIE LILY
A flour without an equal anywhere
Plain and Selfrising
THE BUHLER MILL & ELEVATOR CO.
BUHLER, KANSAS

PAGE'S FLOURS
THE THOMAS PAGE MILL CO.
Topeka, Kansas

Law

(Continued from page 7.)

freely entered into by the defendant Schmid and freely assumed by the other defendants. Had they performed the contract according to its terms they would have been in exactly the same position as will follow from an award of damages based upon the differential between the market and the contract prices. The possibility that the plaintiff may make a large profit is a result of the decline in the market price and is not a sufficient reason for allowing the defendants to escape the obligations of their contract."

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Right to Interest

As a general rule, interest does not commerce to accrue upon a debt until the amount of the debt has become fixed. But the mere fact that a debtor asserts, unsuccessfully, an offset against a fixed debt does not preclude judgment against him for interest from the day when that debt fell due. Concretely applying the last stated proposition, the Kentucky court of appeals ruled that where a mill sued for a balance due on a flour sale, and where the defendant buyer fell down in asserting a counterclaim for the amount of void processing taxes that were involved in the contract price, the trial court properly allowed the mill interest on the sum due it from the buyer, running from the date when the flour bill fell due. (Powell vs. Sparks Milling Co., 149 S. W. 2d, 22.)

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Right to Appeal

An illustration of how a court trial may result in a "dead heat" or a nullity is afforded by a case that was tried in a Kansas district court. A mill sued for damages for breach of a contract to buy flour. A jury returned a verdict for $275, which satisfied neither litigant. Both parties asked for a new trial and the trial judge granted it. Under these circumstances, the supreme court of the state decided that orders of the trial judge, refusing to award the mill the full amount sued for, were not appealable. In dismissing an appeal from those orders, the supreme court said that when the trial judge granted a new trial that put matters just where they would have been had there never been a trial. (Commander-Larabee Milling Co. vs. McBride, 107 Pac. 2d, 668.)

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Contaminated Shipments

Seven hundred bags of flour journeyed by water from Tacoma, Wash., to Charleston, S. C., on their way to Atlanta, and were reloaded into cars belonging to defendant railroad for transportation to the destination. Defendant moved the cars to Waycross, Ga., whence they were handled by the A. B. & C. The consignee rejected the flour at Atlanta because it had been damaged by absorbing a foreign chemical in transit. The shipping mill sued for damages and was awarded judgment, which was upheld by the Georgia court of appeals. (Atlantic Coast Line R. Co., defendant-appellant, vs. Sperry Flour Co., plaintiff-respondent, 11 S. E. 2d, 809.) The court decided that the flour was damaged after it was loaded at Charleston, and that what had been decided on a previous appeal in the same case could not be relitigated. The opinion is, also, to the effect that the trial judge did not err in telling the jury that the law of the case was as follows:

The mill was protected by the interstate commerce law, on this through shipment, from the time it was stowed aboard vessel at Tacoma until it was delivered at its destination in Atlanta. The furnishing of suitable cars at Charleston was a part of the interstate service, but a matter concerning which the mill had no responsibility.

Proof that the flour was in good condition when loaded into the cars at Charleston and was tainted when unloaded at Atlanta, because of which the consignee refused to receive it, entitled the mill to collect damages.

CARRIER'S LIABILITY

Defendant is liable for the damage due to carrying the flour in unsuitable cars regardless of whether or not all of the damage matured on defendant's line or partly on the line of the connecting and delivering carrier, the A. B. & C.

The port utilities commission at Charleston, operator of port facilities connecting with defendant's railroad and issuer of a bill of lading covering transportation from Charleston to Atlanta, was not an initial carrier in such sense as to relieve defendant from liability. (It is to be remembered that defendant furnished the cars in which the flour was loaded. Furthermore, it was proved by the South Carolina statutes that the commission is not a common carrier at all.)

Finally, the defendant contended that, even if the flour was contaminated after being loaded at Charleston, defendant violated no duty to the mill. This argument proceeded upon a theory that the duty of furnishing suitable cars rested upon the initial carrier who received the shipment at Tacoma. To this the court of appeals replied: "If it"—defendant—"assumed the duty of furnishing cars, when it was not under any obligation to do so, it was bound, under the law, to furnish suitable cars for the purposes intended. Its own evidence shows that it did furnish these cars, alone or in conjunction with another, and the evidence is sufficient to show that the cars were unfitted for the purpose of shipping flour and that the" plaintiff "was thereby damaged."

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Trade-Mark Infringement

By acquiring exclusive right to use a trade-mark on a certain class or classes of products, one does not acquire a right to prevent use by another of the same or a similar trade-mark on other products so unlike the first trader's goods as to cause no confusion in the public mind to the prejudice of the first trader. That judicial view was restated by United States District Judge Lindley of Illinois in the case of Time, Inc., vs. Viobin Corp., 40 Fed. Supp. 249.

The publisher of *Life* unsuccessfully sought to restrain defendant from marketing a cereal food under the trade-mark, "Life of Wheat." Originally, the colors and typography of defendant's label resembled *Life's* trade-mark, but they were modified when the publisher complained. The gist of Judge Lindley's decision appears in this extract from his opinion:

"Plaintiff's product consists of the stabilized wheat germ. . . . To me it

Do You Know that Henkel's EXTRA FANCY offer 10 Kinds and Granulations of WHOLE WHEAT FLOURS?

THERE'S ONE FOR YOUR NEEDS . . .
"Made Good" Since 1855
COMMERCIAL MILLING CO.
Detroit, Mich.

THE QUAKER LINE
Flour — Cornmeal
Commercial Feeds
THE QUAKER OATS CO.
St. Joseph, Mo.

KING MIDAS FLOUR
KING MIDAS FLOUR MILLS
Minneapolis, U. S. A.

MERIDIAN FLOUR
NEWTON MILLING & ELEVATOR CO.
Newton, Kansas
Sales Office—Board of Trade Bldg., KANSAS CITY, MO.

We specialize in designing and engraving for Millers and the Grain Trade
Holland Engraving Co.
Kansas City, Missouri

"DIAMOND D"
A High Grade Baker's Spring Patent
Milled Under Laboratory Control from Montana Spring Wheat
Sheridan Flouring Mills, Inc.
SHERIDAN, WYOMING

New Mill Completed 1936
"SLOGAN"
A Modernized Flour for the Baker
CANADIAN MILL & ELEVATOR CO.
El Reno, Okla.

ACME
BAKERS SHORT PATENT
FLOUR
Also "GOLD DRIFT"
These Brands Meet Every Shop Need
The ACME FLOUR MILLS CO.
Oklahoma City, Okla.

Soft Cake Flour
For Biscuit Manufacturers
WATSON HIGGINS MILLING CO.
GRAND RAPIDS, MICH.

"CREMO"
Just the Cream of Hard Wheat
CROOKSTON MILLING CO.
CROOKSTON, MINN.

ARNOLD
...of...
STERLING
Mills and Sells
"Thoro-Bread"
(Diastatically Balanced)
A very fine, strong, altogether uniform and dependable flour
●
ARNOLD MILLING CO.
STERLING, KANSAS

"DURAMBER"
SEMOLINA
FANCY No. 1
Milled from Carefully Selected
AMBER DURUM WHEAT
AMBER MILLING CO.
Chamber of Commerce - MINNEAPOLIS
Cable Address: "AMBERMILCO"

Red River Milling Company
FERGUS FALLS, MINNESOTA
Montana and North Dakota Wheat used exclusively
Daily Capacity, 1,000 Barrels
"CERES" Highest Quality Hard Spring Wheat Flour
●
"No. A1" Highest Quality Hard Spring Wheat Flour
DISTRICT SALES OFFICE:
510 Hodgson Building, MINNEAPOLIS

ALL TYPES OF FLOURS
To Meet Modern Baking Needs
●
FEDERAL MILL, Inc.
Lockport, N. Y.

Bowersock Mills & Power Co.
LAWRENCE, KANSAS
ZEPHYR FLOUR
AS FINE A BAKING FLOUR AS A BAKER CAN BUY AT ANY PRICE
Established 1874 1,500 Barrels Daily

FARGO MILL COMPANY
Millers of Hard Spring Wheat Flour made from the famous Red River Valley Wheat.
FARGO, N. D.

is beyond possibility that one purchasing cereal food labeled Life of Wheat will logically or reasonably deduce from such a label that plaintiff is responsible for the goods. There is no such relationship between the two articles as, by any remote contingency, could cause to rise in the mind of a purchaser, naturally, a belief that plaintiff is in any wise responsible for defendant's cereal food."

But the opinion cites precedents to the effect that where the circumstances falsely intimate that the producer of a famous commercial product sponsors another kind of product, although the two are utterly unlike, an injunction will be granted.

Grain Purchase Angles

When a mill gets "messed up" in buying grain from a farmer, because some third party turns up with a claim against the grain, the claimant is usually a landlord or mortgagee. A case decided by the Washington supreme court shows another of the 57 or more ways whereby a miller might come into collision with a third party. (Reinhart vs. Centennial Flouring Mills Co., Grain Department, 108 Pac. 2d, 377.)

Brothers E and J jointly owned successive wheat crops, but J permitted E to handle them as if they were all his own. One crop was sold to the mill and the next was warehoused with it, all without J participating as owner. Nor did J speak up when he knew that E's creditors had garnished the warehoused wheat as belonging solely to E. But after E had secured a release of the garnishment, through his and J inducing the creditors to believe that the wheat would be turned over to them, J for the first time asserted ownership of half the grain.

The supreme court said that when two persons own grain jointly in a case like this, one cannot dispose of the other's interest unless the latter authorizes or ratifies the transaction, but that the latter, by his silence, may prevent himself from later asserting ownership of any part of the grain. Brother J did not "speak up" when he should have spoken and the law said he must stay mute when to permit him to speak would be to perpetrate a fraud.

Construction Contracts

That a construction contract should be so drawn as to leave no doubt as to the

(Continued on page 41.)

—BREAD IS THE STAFF OF LIFE—

Two Million Spent for Flour Alone

From Oct. 14 through Oct. 25, Kroger Grocery & Baking Co. made a concentrated effort to feature Illinois manufactured and grown products in all of its stores throughout the state.

Last year Kroger's Illinois expenditures totaled $41,443,504, several million dollars in excess of the company's total sales in the state. Last year, Kroger spent more than $2,000,000 for flour alone in the state, $380,000 for chicken and stock feeds, $758,000 for cereals.

Butter, lard, shortening and vegetable oil purchases by the firm in Illinois last year totaled almost $2,000,000. Various corn products, including syrup and starch, accounted for $800,000.

LA GRANGE FLOURS . . .
whether plain or enriched, remain the same high standard, dependable flours that have characterized the products of La Grange Mills over the half century and more of their operation.
This quality pattern is not an accident but the result of painstaking care in wheat selection and careful milling.
☆
You can depend on LA GRANGE FLOURS
☆
LA GRANGE MILLS RED WING MINNESOTA

CANNON VALLEY
is manufacturing one of the outstanding flours made in Minnesota. A perfect flour, laboratory controlled. Many of our old customers and some of our new connections have written us voluntarily that they have never had so many favorable comments. We can please the most exacting.
CANNON VALLEY MILLING CO.
Chamber of Commerce
Minneapolis

Leading Patents
VANITY FAIR
TELEPHONE
MARITIME
Laboratory Controlled

Evans Milling Co.
INDIANAPOLIS, IND., U. S. A
Manufacture Kiln-Dried WHITE CORN PRODUCTS
Capacity, 16,000 Bushels

ROYAL FLUFF-EAT-A
It pays to pick the right cake flour! Average flours really cost more than top quality flours like ROYAL FLUFF-EAT-A, which produces more finished cake per pound of flour. You get a richer, moister, longer-keeping cake with ROYAL FLUFF-EAT-A.
VOIGT MILLING CO.
Grand Rapids, Mich. Telephone 85991

Pfeffer Milling Company
Manufacturers of Pure High-Grade Winter Wheat Flour
Brands: Lebanon Bell, Flake White, Fluffy Ruffles
LEBANON, ILL.
Member Millers' National Federation
Capacity: 1,000 bbls

"Whitewater Flour"
Ground Where the Best Wheat Is Grown
WHITEWATER FLOUR MILLS CO.
Whitewater, Kansas

THE ROSS MILLING CO.
Choice Quality Flour
Plain and Selfrising
OTTAWA KANSAS

UNIFORM QUALITY FLOURS
PLAIN AND SELF-RISING
Low cost laboratory controlled mill grinding all types of wheat
Pancake Flour—Cake Flour—Farina—Whole Wheat Products—Prepared Biscuit Flour
CHELSEA MILLING CO., Chelsea, Mich.

Stuffed Straights

FROM THE MANAGING EDITOR'S SIFTER

By Carroll K. Michener

DAKOTA BAG BARDS.—Lately we published a set of verses by Maude Krake Backlund, of Lisbon, N. D., who rehearsed in rhyme her recollections of good old pioneer days when flour sacks, even with the brand lettering large and indelible thereon, were cherished for shimmy-shirts, pajamas and such like (THE NORTHWESTERN MILLER of Dec. 31, 1941). And in the following issue, you remember, Mrs. Backlund's nostalgia was assuaged by a businesslike and entirely unsentimental reminder from Arthur F. G. Raikes, of Bemis Bro. Bag Co., that Bemis flour bags now are printed with washable inks.

There is a somewhat jittery sequel. Another flour sack ditty has come in from another lady poet of North Dakota, indicating one or maybe all of a number of more or less disturbing things: (1) that there is a poetic conspiracy afoot; (2) that bag manufacturers are framing a publicity stunt; (3) that prairie flours are looking up on the Dakota steppes; or (4) that we are here confronted with one of those literary coincidences that so often have muddied the waters of *belles lettres* with suggestions of poaching but which doubtless are really to be ascribed to the same kind of multiple consciousness that results occasionally in more than one brilliant inventor getting the same bright idea at approximately one and the same time.

Anyway, here is the new outburst which comes from Stella Hall, Fargo:

REMINISCENCE

I remember the days of my childhood,
When clothing was made from a sack,
With "Miller's Delight" on the front side,
And "Certain to Bake" on the back!

No silk or rayon in our budget:
We washed the flour sacks clean
And made petticoats, pants, and pajamas,
All worn with the air of a queen.

Those were the days of our childhood,
When things were simple and sure,
Deep-rooted as our convictions,
And clothing was made to endure.

I yearn again for the plain things,
As items made from a sack,
With "Miller's Delight" on the front side
And "Certain to Bake" on the back!

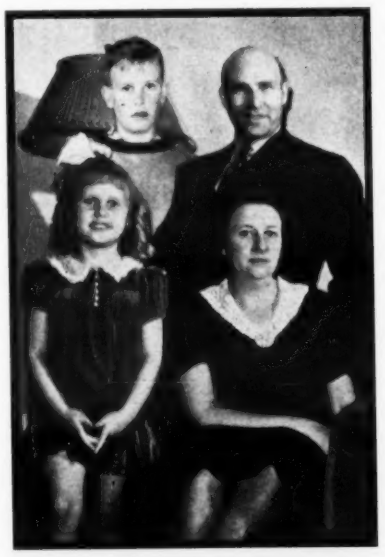
Here's your chance, Arthur: send Stella one of those little Bemis mouchoirs, too, with the Bemis cats washing out Bemis inks.

(Nota Bene to Other Bag Manufacturers.—Bemis has no monopoly on this column, in spite of appearances. Let's see what you can do with a poetic postscript to the sackcloth sentiments of Maude and Stella).

Contributors' Corner

Glen W. Perrins, Utah correspondent for THE NORTHWESTERN MILLER and its associated publications, FEEDSTUFFS, THE AMERICAN BAKER and MILLING PRODUCTION, is managing editor of the Ogden *Standard-Examiner*. How he manages to find time for the excellent and ample service he performs for our readers we don't know, but he does it. The busiest men, you recollect, are not only the most useful men but they are also the ones who are never too busy for one thing more.

Mr. Perrins was born at Evanston, Wyo., April 6, 1902, son of a Union Pacific railroad engineer and of the daughter of a Mormon pioneer. At the age of six his parents took him to Ogden and sent him to school. He finished up with a degree at the University of Utah, where he dabbled in scholastic journalism. In 1924 he started his newspaper career proper as secretary to the managing editor of the *Deseret News*. Later he became a re-



porter, Salt Lake amusement page editor and critic. Ultimately he accepted a position with the *Standard-Examiner*, of which he was successively copy-reader and news editor. He has been managing editor since 1939. He has written short fiction, and in addition to his executive editorial duties he conducts a humor column.

Intimate and frequent are Mr. Perrins' contacts with men of the flour, feed, grain and baking industries. He says he enjoys contributing to the Miller Publishing Co.'s family of papers. He is a club man, has a wife and two children, George and Barbara, who may be seen with him in the picture.

■ ■ ■

. . . An upstate miller, noting our recent comment on the paper situation, which already has important implications for the breadstuffs industries, says he thinks the government should set a conservatory example. He cites a contrary example. "For some time," says he, "we have been receiving forms for flour bids (we have answered quite a few of them but never got an order). Tons of paper are required for these forms (you know how government forms are). Why not save all that by using the simple Millers National Federation form? If we are going to win this war let's cut out the useless red tape, save tons and tons of paper and the work hours it takes to print words on it, write in answers and push it through the mails." . . . Maybe our friend has something here—but when did economy begin in Washington?

■ ■ ■

WASTE PAPER.—Hardly had we slapped off the foregoing when there came a letter from another miller speaking his mind about government waste in the midst of the great emergency that counsels against all wastes. He, too, is outraged by the mountains of form-papers involved in making bids on even the smallest of army requirements, and to the Q.M.C. at Chicago he writes in this reproving vein:

"We received from you this morning request for informal bid on flour No. 199-42-NEG-118-SUB. In eighty (80) full-size pages, printed on one side only, you convey the following information, which could just as well have been sent to us and all the rest of the mills on a penny postcard:

"'Informal bids are requested at 9 a.m., Jan. 15, 1942, to be used as a basis of negotiating contracts for 7,653 bbls of Type B flour, packed in 98's, cotton, f.o.b. mill, delivery, Jan. 26 to April 20. Usual purchase conditions to apply.'

"At a time when private citizens are being asked to conserve paper, there is absolutely no excuse for waste like this. Millions of barrels of flour change hands every year on the single-page contract of the Millers National Federation. The Navy and other government buyers use relatively simple contracts in duplicate. Only the Army goes hog-wild and uses 80 pages to ask for a bid in quadruplicate on a small order.

"As a beginning, why don't you omit all the 'special purchase conditions' on the extra two copies? Better yet, why not omit them entirely and simply refer to 'purchase conditions XYZ' contained in a booklet which will be mailed on request? If you then omit the two extra copies and print on both sides of the paper, you would be down to a one-page contract, which would be about right for an order of this size."

Army regulations, as is well known to those of us who have ever been up against them, are about as impregnable and inviolable as we had supposed our defenses in the Pacific were. Are we being merely treasonable in suggesting that at least the paper-work strategy needs overhauling?

BLITZ TEMPO IN REFORM.—Nobody used to try to reform the world overnight. Now we have a different technique. Or at least we try to do things in blitzkrieg tempo, and sometimes come remarkably close to succeeding. But, thinks Philip H. Van Itallie, technical editor of *Food Field Reporter*, we are impatient at less than complete and instantaneous success.

"Americans," he says, "have ants in their pants. For years we have reacted with undisguised indifference to the findings of nutritional investigators who report that large sections of our population are in poor health because they can't afford to, or simply won't, eat a balanced diet. What is that to me? is the answer. This is a free country. Anybody can eat what he pleases. Nobody is going to tell me what to eat and I'm not going to tell the other fellow what he should eat. Then, presto, we discover we should have better nutrition for defense. Ta-ta te-ta-ta ta-ta te-ta-ta! Everyone starts eating enriched bread at once! All hands on deck. Let's not have any slackers. For years and years our nutritionists have known that the general public was eating haphazardly and that large sections of our population, especially in the South, have had very lopsided nutritional habits. But we call a conference. We decide to 'enrich' white bread. And lo and behold, after a few months, only 33% of all bread is enriched. *Only* 33%? Why, that's a huge success!"

■ ■ ■

Some of our farm bloc statesmen have been heard to wonder lately why it was that we had such inadequate military preparations for the Japs in the Philippines, which leads us to wonder why they should be so innocently unable to think up their own answer. Have they forgotten their haste of recent years to abandon the Philippines to the obvious fate that awaited them as an independent government and their reluctance to fortify Guam lest it should turn out to be aiding and comforting an agricultural competitor?

■ ■ ■

Dr. Robert S. Goodhart, of the Committee on Nutrition in Industry of the National Research Council, on the air in a recent "Listen America" broadcast: "Bread should be included in each meal. It should be either whole wheat or enriched white bread. Workers who are burning their energy rapidly, absolutely require the vitamins in whole wheat or enriched bread." True, doctor, and would not the statement have been equally as true if you had accidentally mentioned enriched white bread first?

Oliver Evans Applied Mechanical Process of Handling Materials to Milling Industry

EDITOR'S NOTE.—This story on Oliver Evans' milling machinery is taken from *Milling in the American Colonies* by H. H. Manchester.

OLIVER EVANS was one of the few really great mechanical geniuses in the early years of our nation. He probably ranks second only to Eli Whitney in the importance of his inventions. The whole process of mechanical handling of materials in manufacture was founded by him and applied to milling.

Mr. Evans' milling machinery was commercially successful practically from the beginning. It was calculated that it saved $30,000 a year in the Ellicott mill in Maryland, on a product of 525 barrels of flour a day. Thomas Ellicott, who installed a number of mills with Oliver Evans' inventions, contrasted sharply the difference between the older and newer processes. His description of the previous process runs as follows:

"In the old way, the wheat is weighed and carried up one or two pair of stairs, and thrown into garners; the bags often having holes in it, it is split and trampled under foot; several barrels being frequently lost in receiving a small quantity; and when it is taken from these garners, and carried to the rolling screens, some is again wasted, and as it is ground, it is shoveled into tubs, a dust is raised, and some spilt and trampled on; it is then hoisted, and spread, and tossed about with shovels, over a large floor, raked and turned to cool, and shoveled up again, and put into the bolting hopper; all which occasions great labor, besides being spilt and trampled over the mill, which often occasions a considerable waste.

"Besides these disadvantages, there are others in attending the bolting hoppers; being often let run empty, then filled too hard, so that they choke, which occasions the flour to be very unevenly bolted; sometimes too poor, and at other times too rich, which is a considerable loss; and when the flour is bolted, it is much finer at the head than the tail of the cloths; the fine goes through first, and has to be mixed by hand, with shovels or rakes; and this labor is often neglected or only half done; by this means, part of the flour will be condemned for being too poor, and the rest be above the standard quality.

"The hoisting of the tail flour, mixing it with bran, by hand, and bolting it over, is attended with so much labor that it is seldom done to perfection."

The difference between this and Evans' system was emphasized as follows:

"If the wheat comes by water to the mill in the ship, it is measured and poured into the hopper, and thence conveyed into the elevator, which elevates it, and drops it into the conveyor, which conveys it along under the joists of the second floor, and drops it into the hopper garner, out of which it is conveyed into the main wheat elevator, which carries it up into the peak of the roof, and delivers it into the rolling screen, which (in this plan) is above the collar beams, out of which it falls into the hopper, thence into the short elevator, which conveys it up into the fan, from whence it runs down slanting into the middle of the long conveyor that runs toward both ends of the mill, and conveys the grain as cleaned into any garner, over all the stones, which is done by shifting a board under the fan, to guide the grain to either side of the cogwheel, and although each of these garners should contain 2,000 bushels of wheat, over each pair of stones, 12,000 bushels in six garners, yet nearly all may be ground out without handling it, and feed the stones more even and regular than it is possible to do in the old way.

Oliver Evans

"As it is ground by the several pair of stones, the meal falls into the meal conveyor, and is conveyed into the common meal elevator, which raises it, from thence runs down into the hopper-boy, which spreads and cools it over a circle of 10 or 15 feet diameter, and (if thought best) will raise over it, and form a heap of two or three feet high, perhaps 30 barrels of flour or more at a time, which may be bolted down at pleasure. When it is bolting the hopper-boy gathers it into the bolting hoppers, and attends them more regularly than is ever done by hand. As it is bolted the conveyor in the bottom of the superfine chest conveys the superfine flour to a hole through the floor, into the packing chest, which mixes it completely. Out of the packing chest it is filled into the barrel, weighed in the scale, packed by water, headed, and rolled to the door, then lowered down by a rope and windlass into the ship again.

"If the wheat comes to the mill by land, in the wagon, it is emptied from the bags into a spout that is in the wall, and it runs in the scale, which is large enough to hold a wagonload; as it is weighed it is (by drawing a gate at bottom) let run into the garner, out of which it is conveyed into the elevator, and so thro' the same process as before.

"As much of the tail of the superfine reels as we think will not pass inspection, we suffer to pass on into the short elevator (by shutting the gates at the bottom of the conveyor next the elevator, and opening one further toward the other end). The rubblings, which falls at the tail of said reels, is also hoisted into the bolting hoppers of the sifting reel, which is covered with a fine cloth, to take out all the fine flour dust, which will stick to the bran in warm, damp weather, and all that passes thro' it is conveyed by the conveyor into the elevator, which elevates it so high that it will run freely into the hopper-boy, and is bolted over again with the ground meal. The rubblings that falls at the tail of the sifting reel, falls into the hopper of the middlings reel; and the bran falls at the tail into the lower story.

"Thus you have it in your power either by day or night, without any hand labor except to shift the sliders, or some such trifle, to make your flour to suit the standard quality; and the most superfine possible made out of the grain, and finished complete at one operation. These improvements are a curiosity worthy of the notice of the philosopher and statesman to see with what harmony the whole machinery works in all their different operations."

Conclusive evidence of the practical success of these processes is given in an account by the Englishman, Weld, of the mills on the Brandywine River in 1795. His account in detail is so similar to that of Ellicott's that it need not be repeated, but we may record his judgment of the success of such milling machinery in the following words: "The improvements which have been made in the machinery of the flour mills of America are very great. . . . No manual labor is required from the moment it is taken to the mill until it is converted into flour and ready to be packed, during the various processes of screening, grinding, sifting, etc."

OPM Swamped With Priorities Complaints; Tire Problem Vexes

WASHINGTON, D. C.—(Special)—Retail bakers have deluged the Office of Production Management with complaints against inability to obtain necessary maintenance and supplies under the priority preference orders which have been issued, and revamped, periodically by the government's defense agency. Similarly the Office of Price Administration has been swamped by inquiries from retail feed dealers on the subject of getting tires for trucks used in getting essential feeds to the farmers for livestock.

OPM is now revising and clarifying its P-22 priority order, which lately has been supplanted by P-100, and will issue within a few days detailed information of how bakers, coal dealers, laundries, milk companies and related consumer delivery industries may obtain necessary parts for the maintenance of their business without interruption.

The tire rationing problem, however, is one that the local tire rationing boards throughout the country must deal with in their localities, it was said at the Office of Price Administration. Officials said there were just so many tires to go around, and they suggested that retail feed dealers and others whose business was regarded as essential to the war effort should describe their problems to the local tire rationing boards, which if the supply of rubber was adequate, were authorized to issue certificates of purchases.

—BREAD IS THE STAFF OF LIFE—

E. E. KLECAN WINS RACE ON K. C. BOARD OF TRADE

KANSAS CITY, MO.—E. E. Klecan, president of Klecan Grain Co., was elected Jan. 6 to the position of second vice president of the Kansas City Board of Trade, which, following precedent, will make him head of the exchange in 1944. Gunnard A. Johnson, of Wolcott & Lincoln, Inc., becomes president for 1942 and John Stark, head of Mid-Continent Grain Co., becomes first vice president.

New directors of the exchange are: J. C. Brackett, J. K. Christopher, Stanley G. Cronin, R. E. Larson, H. A. Merrill, H. A. Robinson.

John T. Sherry

. . . a change in headquarters . .

John T. Sherry, representative of the Eagle Roller Mill Company in West Virginia, Ohio and Kentucky, has changed his headquarters from 600 E. Town Street, Columbus, Ohio, to 932 Ninth Avenue, Huntington, W. Va. Mr. Sherry joined the Eagle company in 1939, going from the Standard Milling Co., with offices in Pittsburgh, where he was district sales manager from 1932 on. He began his career as a flour salesman with the International Milling Co. in 1921. While in Pittsburgh, Mr. Sherry was an active member of the Pittsburgh Flour Club and served as its president.

J. L. Davis

. . . began in Manila . . .

J. L. Davis, president and general manager of the Blish Milling Co., Seymour, Ind., and a director of the American Millers Association, began his business career as a member of the firm of Lack & Davis, Manila, P. I. He was associated with firms in Manila from 1900 until 1915. He was resident manager of the Pacific Commerical Co. at Sydney, Australia, from 1919 to 1922, and represented an American motor company at Mexico City and Havana until 1926. Having served as sales manager of the Blish company previously, he returned to Seymour in 1926 as general manager, succeeding to the presidency in the following year.

Harry Dean

. . heads grain and feed group . .

Harry Dean, of the firm of W. & F. Miller, Iowa City, Iowa, was elected president of the Western Grain & Feed Association when that organization conducted its annual convention in Des Moines early in December. Mr. Dean formerly was chairman of the feed division of the association.

W. Howard Chase is the new director of public services for General Mills, Inc., Minneapolis. Formerly known as the department of relations with the public, the new public services department will assume broader responsibilities under the direction of Mr. Chase. One important function will be to see that the widespread

W. Howard Chase

. . . in General Mills family . .

facilities and operations of General Mills are utilized, in every way possible, in order that the company may be of maximum service to the public and to the government. Mr. Chase goes to General Mills from Washington, D. C., where he was associate editor of the Whaley-Eaton News Service, handling foreign and domestic trends. He served previously as assistant to the president of the American Retail Federation and also, for three years, as editorial writer on the Des Moines *Register and Tribune.* He has also been on the staffs of Harvard and Drake Universities in the capacity of lecturer on international relations.

Personal & Otherwise

ATLANTA VISITORS

Visiting in Atlanta last week were L. G. Traxler, Virginia Dare Cake Co., Spartanburg, S. C; Ernest H. Woods, Ernest H. Woods Co., Birmingham, Ala; Lee Roy Whidby, flour broker, Birmingham, and Roger Grant, Asheville (N. C.) Baking Co.

EASTERN TRIP

Pat Hoy, vice president and sales manager, Amber Milling Co., Minneapolis, stopped off in Chicago last week en route east on a business trip. He also visited the trade in Pittsburgh and vicinity.

ARIZONA HOLIDAY

Fred Wolf, president of the Wolf Milling Co., Ellinwood, Kansas, is spending a winter holiday in Phoenix, Ariz.

IN CENTRAL STATES

Fred N. Burrall, general sales supervisor for the William Kelly Milling Co., Hutchinson, Kansas, left for a fortnight with the trade in Ohio and Pennsylvania.

SON ON THE JOB

Bruce F. Young, manager of the Western Terminal Elevator Co., Hutchinson, Kansas, found his son, Ensign Bruce Young, Jr., very much in the war when he visited him during a holiday visit in California. The young naval officer could manage but one short leave during his father's stay. Mr. Young also visited his father, L. B. Young, Hollywood, former Kansas miller.

CHICAGO CALLER

O. A. Church, Noblesville Milling & Elevator Division of Acme-Evans Co., Indianapolis, was a caller at the Chicago offices of THE NORTHWESTERN MILLER last week. Mr. Church visited the trade in the market a few days.

CIVIC JOB

J. C. Regier, president of the Buhler (Kansas) Mill & Elevator Co., has been chosen vice chairman of the Buhler council of defense.

TEXAS REPRESENTATIVE

J. Q. Adams, Jacksonville, Texas, has been appointed Texas representative for Dobry Flour Mills, Inc., Yukon, Okla., it has been announced by Austin Morton, director of sales of the company.

JOINS GENERAL MILLS

James H. Compton, Jr., who has been city salesman for the Fulton Bag & Cotton Mills, in Minneapolis, is now associated with the technical department of General Mills, Inc.

MARRIED

Miss Charlotte Kimmel was married on Jan. 3 to Oswald F. Jaeger, son of Mr. and Mrs. Oswald C. Jaeger. The groom is assistant superintendent of the Oswald Jaeger Baking Co., in Milwaukee, of which his father is president. The bride is a graduate of the University of Wisconsin, and Mr. Jaeger of Carroll College.

AT BAKERS' MEETING

W. H. O'Keefe, sales manager, International Milling Co., and A. L. Hale, sales manager, King Midas Flour Mills, Minneapolis, are attending the Pennsylvania bakers' convention in Pittsburgh, and visiting their friends in the trade in that state.

ON ACTIVE DUTY

Clark Buswell, manager of the grocery products department at the New York offices of the Pillsbury Flour Mills Co., who has been a reserve officer in the Army for many years, has been called to active duty at Fort Niagara.

IN NEW YORK

B. T. Erwin, general sales manager and executive vice president, Texas Star Flour Mills, Galveston, was a visitor in New York at the offices of the Chinski Trading Corp., who represent the mill in the metropolitan area.

INTO INSURANCE BUSINESS

George F. Phillips, formerly engaged in the sales department of several soft wheat mills and in the brokerage business at Atlanta, Ga., and Birmingham, Ala., is now a representative of the John Hancock Mutual Life Insurance Co. with offices at 1403 William Oliver Building, Atlanta, Ga. He has long experience in sales with the Lawrenceburg (Ind.) Roller Mills, H. C. Cole Milling Co., Chester, Ill., St. Marys (Mo.) Mill Co. and Cape County Milling Co., Jackson, Mo.

ST. LOUIS VISIT

Cyrus S. Coup, president, Northwestern Elevator & Mill Co., Toledo, has returned from holiday visit in St. Louis, with his married daughter living there.

RETURNS HOME

E. O. Wright, president, Wisconsin Milling Co., Menomonie, Wis., was in Chicago Jan. 9. He had spent the holidays with his daughter in Boston, and visited the trade in New York and Philadelphia on his return trip.

VISIT ENDED

Henry Brainerd, Standard Milling Co., Chicago, has returned from a holiday visit with relatives in California.

IN THE SERVICE

James R. Prina, son of Louis E. Prina, flour broker with the Frank R. Prina Corp., New York, enlisted Jan. 5 in the Quartermaster Corps, U. S. Army and was immediately called to duty. He is a graduate of the American Institute of Baking and for nearly a year has been connected with the Frank G. Shattuck

Co. (Schrafft's) in cake work. After the required military training he hopes to be in the bakeshop, which, at Fort Totten where he is stationed, is a modern plant with newly-tiled floors and ceiling and up-to-date equipment. Edgar Prina, Mr. Prina's other son, was called into the Naval Reserve the morning after the Pearl Harbor attack.

RATIONING OFFICIALS

George E. Drake, president of the George E. Drake Baking Co; Theodore H. Doehla, president of Penn Baking, Inc., and C. C. Latus, secretary of the Pittsburgh Flour Club, were designated as chairman of the Commodity Rationing Boards of their respective districts in Pittsburgh.

MOVES OFFICE

Walter R. Churchill, flour broker, who has had his office with Harvey J. Owens on the fortieth floor of the Chicago Board of Trade Building, will move to suite 1220 of the same building on Feb. 1.

IN MIDDLE WEST

Paul T. Rothwell, of Boston, head of the Bay State Milling Co. and Lawrenceburg Roller Mills, has left for the Bay State plant in Winona, Minn. On his return trip he will stop over at Lawrenceburg, Ind., to take care of final matters for the liquidation of the Lawrenceburg Roller Mills.

FLAG PRESENTATION

Max Cohn, president of the Sunset Feed & Grain Co., Buffalo, last week presented a large American flag to the Buffalo Corn Exchange. It was raised in the center of the exchange floor with patriotic ceremonies.

"BAKERS' BRAWL"

The annual "Philadelphia Bakers' Club Brawl" will be held Feb. 10 at the Cedarbrook Country Club, Philadelphia.

OBITUARY

JOHN E. BRENNAN

John E. Brennan, head of John E. Brennan & Co., grain firm, and a prominent member of the Chicago Board of Trade, died Jan. 9 at the age of 62 years. Mr. Brennan was well known in grain and milling circles, having served on many important committees of the Chicago Board of Trade, which he joined in 1907. He served as a director for several years and was a first vice president in 1940. The board members observed one minute of silence at 10:30 a.m. on Jan. 12 in the exchange hall in his memory.

EMMA A. HAGAMAN

Miss Emma A. Hagaman, 83, president of A. Hagaman & Co., pie bakers, died at her home in Albany, N. Y., Jan. 6. She was associated in the business with her two brothers, Charles A. and George A. Hagaman. The business started from the sale of two lemon pies baked by Miss Hagaman which her father took to market. From that her business developed to 12 stores and 22 delivery routes.

MRS. KAROLINE MAYER

Mrs. Karoline Mayer, 81, mother of Julius Mayer, vice president of the Continental Grain Co., St. Louis, and also president of the St. Louis Merchants Exchange, died Jan. 5 in Chicago, where she was living with another of her sons. Mrs. Mayer came to America from Germany in 1934. Simon Mayer, vice president of the Continental Grain Co., Chicago, is one of the family.

CHARLES J. McKENNEY

Charles J. McKenney, identified with the General Baking Co. for the past 35 years, died suddenly in Worcester, Mass., on Jan. 4. He had been manager of the Worcester plant ever since its establishment about 15 years ago. Burial was in Everett, Mass., the town of his birth.

JOHN C. ACKERMAN

John C. Ackerman, secretary-treasurer Mid-West Grain Co., Omaha, died Jan. 9, following two strokes suffered during the day. He was 60 years old and had been a member of the Omaha Grain Exchange for many years.

GEORGE F. ECKENRODE

George F. Eckenrode, who had been engaged in the baking business at McSherrystown, Pa., for close to 50 years, died there recently at the age of 71.

ARTHUR W. BUNCE

Arthur W. Bunce, 84, retired, former Toledo grain man with the old Paddock-Hodge Co., and later secretary of the Toledo Savings Association, died Jan. 5. He had been a resident of Toledo 67 years and was born in South Manchester, Conn. He was preparing to go to the Union Station to meet his daughter, Mrs. A. R. Ayers, Cleveland, when he was stricken.

A. J. LAGER

A. J. Lager, 47, owner of the Lager Bakery, Overland, Mo., died Jan. 8, as a result of an automobile accident near Breeze, Ill.

KING MIDAS ENTERTAINS EMPLOYEES

The management of King Midas Flour Mills played host at a Christmas dinner party on December 23 to 24 girls employed in the company's main office at Minneapolis. The party was held at the Curtis Hotel. Each of the guests was presented with a corsage. Gifts were exchanged and an informal program of singing and entertainment followed the dinner.

—BREAD IS THE STAFF OF LIFE—

GRAIN DEALERS TO MEET

DES MOINES, IOWA.—Plans have been made for the thirty-eighth annual convention of the Farmers Grain Dealers Association of Iowa to be held at Hotel Fort Des Moines here Jan. 21-23. Approximately 1,000 grain dealers of the state are expected to attend. Oscar Heline, of Marcus, is president of the association, and Don E. Edison, Fort Dodge, is secretary.

—BREAD IS THE STAFF OF LIFE—

FORT WORTH WHEAT STOCKS UP

FORT WORTH, TEXAS.—Posted wheat stocks at Fort Worth, including mill stocks, on Jan. 3 totaled 11,263,000 bus, compared with 9,229,000 bus on the same date last year. Some increase in carlot arrivals, mainly for storage, not for sale, during the last few weeks has partly offset shipments and mill grind, and decreases from week to week are small.

—BREAD IS THE STAFF OF LIFE—

CCC 1941 WHEAT LOANS COVER 343,847,395 BUS

WASHINGTON, D. C.—The Department of Agriculture has reported that through Dec. 27, 1941, Commodity Credit Corp. made 500,717 loans on 343,847,395 bus of 1941 wheat in the amount of $338,014,549.

The wheat under loan includes 110,785,524 bus stored on farms and 233,061,871 bus stored in public warehouses. Loans to the same date last year had been made on 270,624,404 bus.

Loans by states follow:

State in which loans originated—	No. of loans	000's omitted—Storage, bus—Farm	Warehouse	Amt.
Arkansas	1	...	...	...
California	186	248	501	674
Colorado	9,639	3,386	6,583	9,931
Delaware	950	...	486	571
Idaho	5,945	2,588	6,265	7,408
Illinois	28,687	917	10,234	12,368
Indiana	17,832	751	5,838	7,474
Iowa	3,004	36	737	800
Kansas	102,095	19,107	54,239	76,101
Kentucky	2,460	...	1,033	1,150
Maryland	3,641	5	1,635	1,925
Michigan	2,938	357	299	656
Minnesota	17,880	3,182	3,793	6,882
Missouri	20,849	186	5,307	5,630
Montana	24,379	20,221	12,295	29,123
Nebraska	48,858	9,645	14,317	23,609
Nevada	3	3	...	2
New Mexico	365	45	549	608
New York	339	12	90	118
N. Carolina	51	...	8	9
N. Dakota	71,514	28,157	29,502	55,816
Ohio	16,305	745	5,478	7,128
Oklahoma	33,945	2,340	15,300	17,040
Oregon	4,262	2,703	11,459	13,201
Pennsylvania	1,645	5	428	502
S. Carolina	1	...	1	2
S. Dakota	46,981	9,095	10,763	19,581
Tennessee	1,720	...	547	611
Texas	22,639	1,146	15,571	16,594
Utah	815	1,167	359	1,216
Virginia	1,220	15	352	430
Washington	8,122	3,293	18,203	18,903
W. Virginia	62	...	32	36
Wisconsin	3	...	...	...
Wyoming	1,381	1,127	840	1,900
Totals	500,717	110,785	233,061	$338,014

—BREAD IS THE STAFF OF LIFE—

FLOUR EXPORT TO BE TOPIC

W. J. deWinter, export manager for the Russell-Miller Milling Co., Minneapolis, will discuss the present world situation, with particular reference to its effect upon flour exporting, at a meeting of the Northwest Section, American Association of Cereal Chemists, at Freddie's Cafe, Minneapolis, Jan. 30.

Robert P. O'Brien

R. P. O'BRIEN NAMED PILLSBURY EXECUTIVE

Leaves McMillen Feed Mills to Become Vice President in Commercial Feed Division of Pillsbury

Robert P. O'Brien, of Fort Wayne, Ind., was named vice president, commercial feed division, Pillsbury Flour Mills Co., Jan. 2, according to an announcement by Philip W. Pillsbury, president. He will assume his new duties at the company headquarters in Minneapolis on Feb. 1.

As vice president of the McMillen Feed Mills and Central Soya Co. of Fort Wayne since 1934, in the McMillen organization he had complete charge of purchasing, feed merchandising and soybean meal sales.

Mr. O'Brien has been in the milling business since boyhood. He was brought up in the plant of the O'Brien Milling Co., of Greenville, Ohio, which was then owned by his father, the late George O'Brien. He started work in the mill while in grade school and held down about every job in the mill.

After graduating from Ohio State University in 1925, he rejoined the O'Brien Milling Co. and worked in both operating and sales divisions, advancing to the position of vice president and general manager. Since 1928 he has been continuously associated with D. W. McMillen in various milling enterprises.

After graduating from high school in Greenville, he attended Ohio State University, where he majored in marketing and business administration and played varsity football.

—BREAD IS THE STAFF OF LIFE—

WISCONSIN BAKERS PLAN MEETINGS FOR ECONOMY TALKS

The Wisconsin Bakers Association has scheduled a meeting of bakers and allied tradesmen to be held at Appleton, Feb.3. Topics for discussion include the curtailment of unnecessary sales and distribution expense; discontinuation of premiums, free goods, free display racks; a better control of stales; conservation of paper and packaging materials and delivery equipment, such as tires, gasoline, and oil.

The meeting will be held at the Conway Hotel at 2 p. m. Additional meetings throughout the state are planned by the association.

Mill on Popolopen Creek, Retired 36 Years, Tells Historic Tale of American Trade

By Elizabeth Bowley

IF you should happen to be driving along on highway 9W, which runs north from New York to Albany on the west side of the Hudson River, and chance to look down as your car crossed the bridge which spans Popolopen Creek, not far from West Point, you would see the Old Mill which is here pictured.

Recently this old-time relic of the early milling industry on the eastern coast passed into the hands of the Palisades Interstate Park Commission, to be preserved as an historical monument in connection with the famous Bear Mountain Park. For 36 years prior to that, it was part of the United States Military Academy Reservation. Located in the highlands of the Hudson, directly opposite that great promontory known as "Anthony's Nose," it rests peacefully on a spot marked in history by desperate and bloody conflict, where Mad Anthony Wayne, Putnam, Benedict Arnold, Andre, and many others performed their famous exploits. Fort Montgomery and Fort Clinton were within a stone's throw from the mill site. Upstream at West Point were Fort Putnam, Fort Constitution, and the great iron chain that closed the river to British ships.

The history of the mill itself is not without color. It was constructed in 1817 by one of the old firms of merchant princes of New York—Suydam & Wychoff. In the abstract of title to the property you can read where John Jay, the great patriot and defender of liberty—governor of New York, president of the Continental Congress, negotiator of the Peace of 1783 and of the Jay Treaty of 1794—witnessed the will of John Suydam. Mr. Suydam's partner, Mr. Wychoff, was a good, old-fashioned alderman and represented the First Ward for many years.

The firm not only did a wholesale trading business and owned warehouses and mills, but owned and operated the sloops that sailed the Hudson River and Long Island Sound and transported their own raw materials and products in that way. One of Wychoff's sons went so far as to branch out into the baking business in New York City, selling sea biscuits to ships. For a day in which "concentration of industry" was little known, the concern controlled an astonishing part of the ramifications of the flour industry.

The mill was operated to produce flour until 1852. Then the competition between the newly constructed railroads and the sailing sloops, or "packets," began to be felt. Realizing the ultimate turn of the milling industry away from southern New York, the merchants with keen foresight sold their mills along the Hudson, to the great astonishment of all.

The old mill then experienced a variety of uses. For a while it manufactured excelsior for the packing of merchandise, drawing its raw material from the thickly wooded country upstream. Then it became a wire mill and turned out bed springs. Next it ground pulp wood for the paper industry. Later an electric power company installed generators and utilized the water power. Since the United States government took over the site in 1905, the old mill has been retired to enjoy a well deserved rest.

Editor's Note.—On a recent visit to her father, Colonel F. W. Bowley, at the United States Military Academy at West Point, Miss Bowley, who is a member of The Northwestern Miller's Kansas City office staff, came upon the old mill shown in the accompanying picture and took the photograph from a high point overlooking the stream. The accompanying article is written from notes collected by Colonel Bowley, in charge of property purchases in connection with expansion of the Military Reservation, from the recorded history of the old mill and its owners.

——BREAD IS THE STAFF OF LIFE——

SUGAR ALLOTMENT PLAN ANNOUNCEMENT CORRECTED

The Office of Production Management has issued a correction in its sugar allotment plan as announced Jan. 2. The release contained a statement which read: "Under today's amendment, a receiver who was not in business in 1940 may receive up to 85% of the average monthly delivery made to him during September, October and November of 1941 or any part of that period that he was in business, provided entire months are used." It should have read as follows: "Under today's amendment, a receiver who was not in business in 1940 may receive up to 85% of the average of his monthly use or resale of direct consumption sugar, etc.

Raw Sugar Price Adjusted

Maximum prices of raw cane sugar were raised 24c per 100 lbs Jan. 4 by Price Administrator Leon Henderson. This action is in accordance with the terms of the arrangements by which the government is purchasing the 1942 Cuban crop of sugar and molasses. This adjustment of the ceiling price yields $2.65 per 100 lbs, f.o.b. Cuba, the agreed upon minimum price. The purchase is being made through the Defense Supplies Corp. and is the result of negotiations in which the Departments of State and Agriculture and the Office of Price Administration participated. The new ceiling price is $3.74 per 100 lbs, duty paid, cost and freight basis, New York. This compares with the former ceiling price of $3.50 per 100 lbs, New York. The increase in the price at U. S. Gulf and South of Cape Hatteras ports is 25c per 100 lbs.

——BREAD IS THE STAFF OF LIFE——

KANSAS OPERATIVES HEAR ABOUT WHEAT AND INSECTS

George B. Wagner, entomologist for the Millers National Federation, Chicago, and Dr. John H. Parker, director of the Kansas Wheat Improvement Association, were the principal speakers at a meeting of District 1, Association of Operative Millers, held at the Lassen Hotel, Wichita, Kansas, Jan. 10. Attendance was close to the hundred mark.

In a campaign to make various wheat varieties easily selected by appearance as well as by record, Dr. Parker presented each miller with a cardboard upon which were attached samples of Turkey, Tenmarq, Blackhull and Chiefkan wheat. With the use of greatly enlarged photographs, the speaker pointed out physical characteristics by which the varieties may be distinguished. He spoke at length about the co-operative effort of the improvement association and various agricultural groups to keep Kansas wheat production stable in those varieties that have proved most suitable. Some mills, he stated, were working toward this end by paying a 2c premium for Turkey, Tenmarq and Kanred wheats. Demonstrating the thin bran-coat of a grain of Tenmarq wheat as contrasted to the thicker one on Blackhull, he pointed out that the latter was incapable of producing as much salable flour as the former. In wheat quality contests, he remarked, the new practice was to rate 40% for milling value and 60% on baking qualities. Under the older system, judgment was largely based upon appearance and test weight.

Still speaking of the three recommended varieties, he gave their thiamin contents. Tenmarq has averaged 1.92 I.U. per gram, Turkey 1.78 and Chiefkan 1.50. Blackhull has shown an average content of 1.61.

Two new varieties are well under way at Kansas State College, Dr. Parker disclosed. He stated that their high qualities had been definitely established, but that they would not be available for general use until the fall of 1943. One, Pawnee, is a cross between Tenmarq and Kawvale. The other, named Comanche, is derived from Tenmarq and Turkey.

Swinging from wheat to the insects that destroy it and its products, Mr. Wagner stated emphatically in his address that only by the co-operation of all concerned—the farmer, elevator operator, miller, warehouseman and retailman—could infestation be controlled. Persistence in using the most applicable of the several good means available to eradicate infestation was his formula for attaining that end. He reported on experiments in which very cold air was used to kill insects and their eggs, and stated that keeping wheat at a temperature of about 40° for 75 days had been effective. Obvious disadvantage of such methods is that business cannot wait upon whims of the weather.

W. E. McCraith, A.O.M. secretary, with headquarters in Kansas City, spoke briefly. He presented a resolution concerning a junior membership class for the association. This was approved by the district, and will be put to a vote at the annual convention of the parent organization, to be held in Seattle next June. Mr. McCraith also announced a meeting of grain elevator superintendents held Jan. 20 at Edison Hall, Kansas City, Mo. The meeting, which will begin at 8 p.m., will be devoted principally to a discussion of means for preventing sabotage of milling properties.

During a round table discussion, the question of a possible shortage of freight cars arose. Worry about this was dismissed with the suggestion that all available cars be kept constantly in use.

Next meeting of the district will be held in Salina Sept. 12. Charles Light, Jr., of the Light Grain & Milling Co., Liberal, Kansas, presided.

——BREAD IS THE STAFF OF LIFE——

GOVERNMENT LOANS COVER 16,425,221 BUS '41 BARLEY

Washington, D. C.—The Department of Agriculture has reported that through Dec. 27, 1941, Commodity Credit Corp. made 22,585 loans on 16,425,221 bus of 1941 barley in 20 states. Loans average 40c bu.

Approximately 15,300,000 bus of the total barley under loan are stored on the farm. On the same date last year loans were reported on 7,067,735 bus of barley.

Loans by states follow:

State—	No. loans	Storage, bus—Farm	Storage, bus—Warehouse
California	2	2,875	19,271
Colorado	209	170,247	35,866
Idaho	84	50,741	66,669
Iowa	17	7,107	1,481
Kansas	633	644,415	14,153
Michigan	6	2,843	...
Minnesota	1,766	1,225,096	93,972
Missouri	1	258	...
Montana	163	131,840	...
Nebraska	12,455	7,227,538	541,014
New Mexico	2	1,380	...
North Dakota	2,585	2,097,261	79,549
Oklahoma	127	122,882	3,976
Oregon	16	24,137	3,088
South Dakota	3,832	2,669,208	2,477
Texas	589	882,974	194,805
Utah	49	40,085	3,481
Washington	16	7,293	25,218
Wisconsin	1	864	...
Wyoming	32	29,631	1,516
Totals	22,585	15,338,675	1,086,516

——BREAD IS THE STAFF OF LIFE——

Rye Flour Output

Following is the rye flour output reported to The Northwestern Miller by mills at Chicago, Minneapolis and outside points in the Northwest, in barrels, with comparative figures for the previous week:

	Week ending—Jan. 3	Jan. 10
Five mills	14,306	14,982

CENSUS REPORT ON FLOUR AND FEED OUTPUT

The Department of Commerce announces statistics on wheat ground and wheat milling products by months. The figures for October are revised to include reports received since the preliminary bulletin for that month was issued. These returns include only mills which are now manufacturing at the rate of 5,000 or more barrels of flour annually.

For November, 1941, 961 companies report 1,090 mills, of which 66, with daily capacity of 23,564 bbls, were idle. Of the 1,090 mills which reported detailed production data at the biennial census of manufactures, 1939, 1,051 accounted for 105,294,030 bbls of the total wheat flour, 111,368,727 bbls, reported for that year.

The wheat ground averaged 274.3 lbs per bbl of flour in November, 273.9 in October, 273.3 in September, 273.2 in August, 273.3 in July, 272.4 in June, 272.5 in May, 272.6 in April, 272.4 in March, 272.2 in February, 272.2 in January, 1941, and 272.4 in December, 1940.

The offal reported amounted to 79.1 lbs per bbl of flour in November, 79.1 in October, 78.6 in September, 78.5 in August, 78.8 in July, 78.2 in June, 78.6 in May, 78.5 in April, 78.3 in March, 78.1 in February, 78.3 in January, 1941, and 78.3 in December, 1940.

1941—	Mills reporting	Wheat ground, bus	Production—Wheat flour, bbls	Production—Wheat offal, lbs	Daily wheat flour capacity, bbls	Per ct. of capacity operated
November	1,090	37,559,901	8,215,894	650,109,856	574,261	59.6
October	1,090	44,251,019	9,693,028	766,312,956	576,931	62.2
September	1,093	43,247,401	9,495,471	745,899,210	571,116	65.8
August	1,097	39,123,440	8,592,209	674,350,556	578,211	57.2
July	1,099	40,625,412	8,918,328	703,200,817	578,322	59.3
June	1,104	38,818,781	8,551,625	669,140,516	580,457	58.9
May	1,106	39,044,639	8,595,895	675,410,877	582,373	56.8
April	1,100	40,899,012	9,001,951	706,943,556	581,799	59.5
March	1,100	39,791,630	8,763,643	686,550,677	581,943	57.9
February	1,097	36,574,699	8,063,113	630,123,999	581,818	60.3
January	1,085	39,999,943	8,817,984	690,728,367	584,488	58.0
1940—						
December	1,074	39,077,751	8,165,733	639,306,276	587,484	55.6
November	1,076	39,706,888	8,736,271	687,760,399	591,464	59.1
October	1,079	45,319,131	9,959,829	785,827,575	589,544	62.6

COMPARATIVE STATEMENT FOR 772 IDENTICAL MILLS*

1941—	Wheat ground, bus	Production—Wheat flour, bbls	Production—Wheat offal, lbs	Daily wheat flour capacity, bbls	Lbs of wheat per bbl of flour	Lbs of offal per bbl of flour	Per ct. of capacity operated
November	35,906,691	7,864,394	619,785,273	534,310	273.9	78.8	61.3
October	42,426,119	9,305,958	732,626,262	537,650	273.5	78.7	64.1
September	41,449,076	9,112,127	712,718,072	537,560	272.9	78.2	67.8
August	37,405,665	8,226,402	642,932,798	538,790	272.8	78.2	58.7
July	38,925,725	8,556,366	672,051,893	538,701	273.0	78.5	61.1
June	37,116,491	8,188,294	637,814,947	540,376	272.0	77.9	60.6
May	37,524,996	8,272,371	647,239,312	543,451	272.2	78.2	58.5
April	39,286,720	8,657,664	677,479,346	543,307	272.3	78.3	61.3
March	38,218,533	8,427,751	657,486,771	543,512	272.1	78.0	59.6
February	35,109,843	7,750,006	602,980,701	543,717	271.8	77.8	62.0
January	38,405,922	8,477,310	661,134,090	547,352	271.8	78.0	59.6

*These mills produced 102,126,085 bbls of the total wheat flour production (111,368,727 bbls), as shown by the preliminary report of the biennial census of manufactures, 1939, and accounted for 95.7% of the wheat flour reported for November, 1941 (8,215,894 bbls). During November, 1941, 42 mills with capacity of 20,054 bbls were idle.

Western Canada Visible Grain Supply

Visible supply of grain in the western inspection division Jan. 9, 1942, and receipts and shipments during the past week, in bushels (000's omitted):

Fort William and Port Arthur—	Wheat	Durum	Oats	Barley
Semi-public terminals	101,691	593	2,426	4,437
Private terminals	1	..	46	8
Winter storage—Afloat	1,726	..	..	..
Totals	103,418	593	2,472	4,445
Vancouver-New Westminster	18,152	..	118	61
Int. public and semi-public elevators	18,073	..	43	7
Churchill	2,617	..	..	..
Victoria	1,025	..	..	..
Prince Rupert	1,206	..	..	..
Totals	144,491	593	2,633	4,513
Year ago	117,689	1,241	2,214	1,381
Receipts during week—				
Ft. Wm.-Pt. Ar.	2,821	16	79	73
Pacific seaboard	32	..	9	4
Int. public and semi-public elevators	5	..	..	..
Totals	2,858	16	88	76
Shipments during week—Ft. Wm.-Port Arthur—				
Rail	427	7	378	188
Int. public and semi-public elevators	10	..	5	5
Pacific seaboard	13	..	6	..
Totals	450	7	389	194

TOTAL RECEIPTS

Aug. 1, 1941-Jan. 9, 1942

Ft. Wm.-Pt. Ar.	124,682	1,255	10,826	14,685
Pacific seaboard	1,517	..	179	80
Int. public and semi-public elevators	313	..	91	39

TOTAL SHIPMENTS

Aug. 1, 1941-Jan. 9, 1942

Ft. Wm.-Pt. Ar.	102,787	1,321	10,850	11,390
Pacific seaboard	895	..	83	38
Int. public and semi-public elevators	2,193	1	46	29

Flaxseed Receipts, Shipments and Stocks

Receipts, shipments and stocks of flaxseed at principal primary points for the week ending Jan. 10, in thousand bushels, with comparisons:

	Receipts 1942	Receipts 1941	Shipments 1942	Shipments 1941	Stocks 1942	Stocks 1941
Minneapolis	171	109	81	35	3,715	5,244
Duluth	..	44	35	..	1,369	235

Millfeed Receipts and Shipments

Receipts and shipments of millfeed at the principal distributing centers for the week ending Jan. 10, in tons, with comparisons:

	Receipts 1942	Receipts 1941	Shipments 1942	Shipments 1941
Minneapolis	...	...	10,000	6,525
Kansas City	3,425	2,150	6,100	5,400
Philadelphia	380	200	...	...
Milwaukee	20	20	1,940	2,520

Flour and Grain Receipts and Shipments

Receipts and shipments of flour and grain at the principal distributing centers for the week ending Jan. 10, as compiled by the Daily Trade Bulletin‡, flour given in barrels, grain in bushels (000's omitted throughout):

RECEIPTS

	Flour	Wheat	Corn	Oats	Rye
Chicago	233	176	950	386	16
Duluth	..	473	23	22	41
Indianapolis	..	19	386	152	14
Kansas City	..	480	281	30	..
Milwaukee	13	7	52	4	21
Minneapolis	..	923	140	600	114
Omaha	..	117	273	36	..
Peoria	29	19	626	46	22
Sioux City	..	17	108	8	4
St. Joseph	..	29	145	70	..
St. Louis	125	143	216	32	12
Wichita	..	182	..	..	..
Totals	400	2,585	3,200	1,386	244
Seaboard—					
Baltimore	21	254	82	11	11
Boston	19	151	..	..	..
Galveston	..	177	..	..	..
New York	163	53	..	8	..
New Orleans	19	..	42	16	..
Philadelphia	36	259	6	4	..
Totals	258	*894	130	39	11
Grand totals	658	3,479	3,330	1,425	255
Last week	652	4,209	4,107	1,581	340
Last year	629	2,176	4,142	925	152

*503,000 bus bonded.

SHIPMENTS

Primary points—					
Chicago	146	315	1,002	328	58
Duluth	..	65	7	3	43
Indianapolis	..	17	313	62	13
Kansas City	91	788	252	30	..
Milwaukee	3	..	22	27	26
Minneapolis	129	537	173	956	135
Omaha	..	35	396	40	..
Peoria	29	32	131	22	3
Sioux City	..	..	186	4	..
St. Joseph	..	19	45	20	..
St. Louis	104	239	75	62	11
Wichita	..	169	..	..	..
Totals	502	2,216	2,602	1,554	289
Seaboard—					
Baltimore	..	224	..	..	..
New York	..	239	..	..	..
Philadelphia	..	256	..	..	..
Totals	..	*719	..	..	..
Grand totals	502	2,935	2,602	1,554	289
Last week	438	2,620	2,412	1,418	232
Last year	498	2,442	2,437	892	167

*Bonded. ‡Some allowance should be made for duplication.

Millfeed Futures Open Interest

Following table shows open contracts at Kansas City and St. Louis on Jan. 12, in tons. This is the short side of contracts only, there being an equal number of tons open on the long side.

	Kansas City Bran	Kansas City Shorts	St. Louis Shorts	*St. Louis Bran Midds.
January	3,375	1,575	300	1,500 100
February	4,825	1,600	300	3,600 100
March	8,150	6,900	500	4,500 200
April	3,500	4,300	400	1,700 300
May	2,125	1,900	300	4,000 ..
June	1,100	..	..	1,450 100
Totals	23,075	16,275	1,800	16,750 800

*Delivered in Chicago.

DAILY CAPACITY
2,000 barrels flour 500 barrels corn meal
300 tons commercial feeds
COMPLETE LABORATORY CONTROL and 1,000,000 BUS. GRAIN STORAGE
assuring absolute uniformity of product
ABSOLUTE GUARANTEE
of quality behind every barrel—backed by 66 years' milling experience

SCHULTZ, BAUJAN & CO., Beardstown, Illinois—Founded 1875

THE BEARDSTOWN MILLS

Export Flour Insured ALL RISKS by
The Sea Insurance Co., Ltd.
of LIVERPOOL
U. S. Branch Assets.....$4,904,187
Capital Deposited in U. S..... 500,000
Surplus for Protection of Policyholders..... 2,930,199
ORIGINATORS OF ALL RISKS
Insurance on Flour
Policies of this Company are held by all leading millers
CHUBB & SON
United States Managers
90 John Street - - New York
Insurance Exchange - Chicago
Hurt Building - - Atlanta, Ga.
Royal Bank Building - - Montreal

Mill *and* Elevator Insurance
of all kinds
MARSH & McLENNAN
MINNEAPOLIS OFFICE 1515 NORTHWESTERN BANK BUILDING

FLOUR and FEED routed via the Chicago & Illinois Midland Railway Co. goes forward to destination promptly
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VITAMIN ASSAYS
ENRICHED FLOUR, BREAD AND OTHER PRODUCTS TESTED ACCORDING TO CHEMICAL, BIOLOGICAL AND MICROBIOLOGICAL METHODS OF ASSAY.
LABORATORY OF VITAMIN TECHNOLOGY
1411 East 60th Street Chicago, Illinois
HOWARD J. CANNON, Director

FEEDSTUFFS
—*The feedman's weekly newspaper*
Published by The Northwestern Miller Staff
$1.00 PER YEAR
118 So. Sixth St. Minneapolis, Minn.

MARKETS IN DETAIL

U. S. FLOUR MARKETS

THE SOUTHWEST

Kansas City: Sales in the Southwest much larger, only because of a week end sale to a large eastern buyer, which ran more than 200,000 bbls, and other volume business. With these large orders, sales reached 137% of capacity, compared with 44% the previous week and 42% a year ago. Outside of the large business, sales light. Buyers operating on heavy backlogs and see no real advantage in booking still further ahead, although millers are arguing that there is little to be lost by booking any commodity now.

Operations heavy, although directions are slower for some mills. Family shipments still heavy.

Clears hard to sell. Market is no more than maintained. Export business light, but continues on a routine basis.

Quotations, Jan. 10: established brands of family flour $7.05@7.30, bakers short patent $6@6.25, 95% $5.85@6, straight $5.75@5.95, first clear $3.90@4.15, second clear $3.65@3.90, low grade $3.60@3.70.

Of the mills reporting, 1 reported domestic business active, 7 fair, 6 quiet, 6 slow and 8 dull.

Oklahoma City: Gratifying improvement in sales, which averaged 120%, compared with 51% last week. Some exports to the Latin Americas. Domestic sales divided, 60% to bakers and 40% to family buyers. Operation averaged 70%, compared with 65% last week. Prices stable and closed practically unchanged. Quotations, basis 98-lb cottons, delivered Oklahoma points: hard wheat short patent flour $6.60@7.85, soft wheat short patent flour $6.60@7.85, standard patent $6.30@7.45, bakers extra fancy $6.25@6.35, bakers short patent $6.10@6.20, bakers standard $6.05@6.15.

Omaha: Sales by Omaha mills were uneven for the week and in some quarters bookings were extremely light. Sales ranged from 20 to 95% of capacity production. Demand was largely for family flour. No export flour is going out of Omaha.

Shipping directions on former sales were good. Local mills operated full time, seven days and nights, and produced 33,600 bbls of flour.

Omaha mills quoted car lots f.o.b. Omaha as follows: family fancy short patent $6.40@6.75, standard patent $5.75@6.15, bakers short patent $5.75@6.15, bakers standard patent $5.50@5.90.

Wichita: Sales 50 to 60%; directions from 80 to 100%; quotations up 5c.

Hutchinson: Interest continues meager, with new bookings extremely light, as prices are held about steady; large buyers not interested; shipping directions satisfactory.

Salina: Demand continues slow, with prices about 5c bbl higher. Shipping directions seem difficult to secure.

Texas: The first week in January shows a general, moderate improvement in demand; sales range from 25% of capacity with some mills to 35% or 40% with others, who were able to pick up some fairly large round lot orders. Operations also slightly expanded, and average around 70% of capacity. Prices unchanged to a shade higher. Quotations, Jan. 9: family flour 48's, extra high patent $6.80@7.30, high patent $6.30@6.80, standard bakers, 98's, $6.20@6.50; first clears, sacked, $4.70@4.80, delivered Texas common points or Galveston domestic rate.

THE NORTHWEST

Minneapolis: New sales picked up during the week, with most of the business being done on Jan. 5, following advance in wheat on Jan. 3. Business fell away during rest of week to small proportions. Another flurry of buying was reported on Jan. 12, with sharp advances in wheat resulting from Washington news on price control legislation. Sales aggregated 95% of capacity, compared with 62% a week earlier and 65% for the same week a year ago. Most of new business was from bakers and jobbers and was scattered with no large lots being sold.

Directions continued light, with much flour on the books yet to go forward.

Clears were slightly easier, with a fair demand. Export trade was lighter than usual.

Quotations, Jan. 13: established brands of family patent $7.15@7.25, spring first patent $6.85@6.95, standard patent $6.55@6.70, fancy clear $6.35@6.45, first clear $5.95@6.15, second clear $4.10@4.60, whole wheat $6.25@6.35, graham standard $5.25@5.70.

Of the 15 Minneapolis mills, the following were in operation Jan. 13: Atkinson, King Midas, Minneapolis (two mills), Northwestern Consolidated A, Pillsbury South A, Durum A, Graham and Phoenix, Russell-Miller, Washburn Crosby A, C, F, Rye and Whole Wheat.

Interior Mills, Including Duluth: Trade was a little dull, with buyers not showing much interest and sales lean. Scattering inquiries brought in some bookings for deferred delivery, but majority of buyers seemed to be covered for present, expecting to buy as needed later on. Mills are seeking increased shipping directions, but there was slow response to requests.

Duluth: Quotations, Jan. 10: first patent $6.90, second patent $6.70, first clear $6.30.

THE CENTRAL WEST

Chicago: An improved demand noticeable. Although buying not general, sales more numerous and chiefly in one or two car lots, with a few lots of 1,000, 2,000 and 3,000 bbls being reported. Most agents reported shipping directions also improved, in some cases better than sales. Family also more active. Quotations, Jan. 10: spring top patent $6.30@6.70, standard patent $6.10@6.50, first clear $5.60@6, second clear $3.65@4.20, family flour $8.30@8.45, hard winter short patent $6.05@6.40, 95% patent $5.90@6.20, first clear $4.75@5.10; soft winter short patent $5.70@6.10, standard patent $5.50@6, first clear $4.70@5.10.

St. Louis: Slight improvement in new business reported. Some fair size bookings placed on the books by mills. Usual car lot orders show an increase. Bakers, family and blenders participating; fair demand for soft wheat clears; prices unchanged relative to patents; jobbers advise practically no change in the situation. Trade taking care of requirements from old contracts. Shipping directions improved slightly. Quotations, Jan. 10: soft wheat short patent $6.35@7.25, straight $5.65@6.05, first clear $4.85@5.25, hard wheat short patent $5.60@6.30, 95% $5.45@5.95, first clear $4.50@4.90, spring wheat top patent $5.80@6.30, standard patent $5.65@6.05, first clear $5.35@5.80.

Toledo: There was evidence of improvement in sales last week, much more interest and more concern about future requirements, with prices working up to higher levels, and being more firmly held. Some good sales were put through and there were further nibbles. It seems now to look definitely like stiffness at present levels, with marked notable tendency to work higher, as far as it can go with present ceilings. At same time, there are still a good many buyers who are taking only what they must have for near-by use.

Toledo bid for No. 2 red wheat, 26c rate points to New York, Dec. 9, had worked to $1.24⅞, equivalent to 4c under Chicago May future. Soft winter wheat standard patent flour was quoted at $5.85@5.95; locally made springs, high gluten $6.85, bakers patent $6.60, hard winter wheat bakers patent $6.50, in 98's, f.o.b. Toledo or mill.

Cincinnati: Following rather spirited buying over week end, demand is now fair. Supplies are plentiful and trend good. Quotations, Jan. 12: spring standard patent family $7.25@7.50, standard patent $6.75@7, first clear $5.50@5.75, hard winter short patent $6.75@7, standard patent $6.25@6.50, first clear $5@5.25; soft winter patent family $6.25@6.50, standard patent $6@6.25, first clear $4.75@5.

EASTERN STATES

Buffalo: Family trade have placed substantial orders and the majority of the new contracts are in that branch of the trade. Bakery buyers emerged from their heavy holidays to place some orders, but the volume not in the same proportionate increase as in the family branch. Bakery trade better booked and that was the principal reason for their buying. Shipping directions good and production schedules expected to be maintained at fairly high levels during the balance of the month. Patents increased 20c bbl in price and clears 10c bbl, but these increases played but little part in the market trends. Foreign trade light. With the fall of Hongkong, sales to that crown colony cut off, and Central, South America and Cuba continue to take the great bulk of export flour.

Quotations, Jan. 10: spring fancy patent $8.45@8.55 bbl, top bakery patents $6.75@6.85, standard patent $6.65@6.75, spring straights $6.55@6.65, spring first clears $5.90@6, soft winter short patent $7.10@7.20, pastry $6@6.10.

New York: Scattered inquiry continues through the trade, and although the volume is not large it is encouraging for early January, which does not usually see much activity. Buyers seem to feel the uncertainty of conditions and therefore in some channels wished to replenish stocks; other shipments for 30@60-day delivery, while many brokers in contrast report their chief interest is in getting shipping directions. Some of the larger bakers who purchased the previous week withdrew their interest and no large round lot business reported. Springs and Kansas grades the most active, with many Texas mills out of line, while among cake flours, eastern grades show a proportionally high advance, with farmers not anxious to dispose of wheat in this section. Clears scarce with most mills, although sales at the lower end of the quoted range are indicated.

Prices, Jan. 9: spring high glutens $6.90@7.15, standard patents $6.50@6.80, clears $6.15@6.45, Texas high glutens $6.40@6.65, Kansas high glutens $6.45@6.65, 95's $6.40@6.55, clears $5.20@5.50, soft winter straights $5.80@6.15.

Boston: New business slightly more apparent than it has been during and before the holidays. Most mill agents report a few sales, but volume is light and in a general way results could hardly be described as encouraging. Considerable apprehension as to what lies ahead noticeable in the trade, although new restrictions and regulations have been accepted philosophically and with an attitude of making the best of things. Chief concern among bakers, particularly house-to-house operators, is the new tire restrictions and their probable effect on distributive methods. Result of present conditions is an apathy toward new commitments accentuated by lack of definite market trends. Sales confined to minimum car lots, with no particular type holding preference. Family sales slow, while shipping directions brought in only with considerable effort. Prices quoted 10c higher on most types. Quotations, Jan. 10: spring high glutens $7.05@7.25, short patents $6.90@7.05, standard patents $6.75@6.90, first clears $6.40@6.65; southwestern short patents $6.75@6.90, standard patents $6.60@6.75, Texas short patents $6.90@7, standard patents $6.75@6.90; soft winter patents $6.10@6.30, straights $5.85@6.10, clears $5.65@5.85.

Baltimore: Quotations on soft winter short patent and straight 10c per bbl higher; other grades steady; demand little changed; receipts, 21,684 bbls, a decrease of 119 bbls from the previous week. Quotations, Jan. 10: spring first patent $6.70@6.95, standard $6.45@6.65, hard winter short patent $6.35@6.55, 95% $6.15@6.40, soft winter short patent $6.50@7.20, straight $5.10@5.45.

Philadelphia: Market generally firm, with prices of spring wheats higher. Demand spotty, with buyers and sellers apart at least 10@20c bbl in their ideas of value. The undertone at the close continued firm, with the mills reluctant to make concessions. Buyers operating only as impelled by immediate necessity. Quotations, Jan. 10: spring wheat short patent $6.95@7.10, standard patent $6.75@6.90, first spring clear $6.10@6.25, hard winter short patent $6.60@6.80, 95% $6.45@6.60, soft winter straights $5.10@5.85.

Pittsburgh: Sales held to small lots due to consumers' stocks being in excellent condition. Looked for large lot buying on part of averaged sized bakers did not materialize. Bookings were held to a few scattered cars and smaller quantities, practically all for shipment, with the 30-60 day limit. Shipping directions improved. Southwestern hard wheat flour was best seller, with limited demand for northwestern spring wheat flours. Larger bakers are well supplied for some time ahead. They report sales of their products as exceptionally active. Soft winters sales moderate, with prices unchanged. Demand for clears, especially better grades, is brisk. Family flour demand fair, with prices higher. Quotations, Jan. 10: spring short patent $6.75@7, standard patent $6.55@6.75; hard winter short patent $6.25@6.40, standard patent $6.10@6.25; low protein hard winter standard patent $6.05@6.15, spring clears $6.40@6.55, soft winters $5@5.15, bulk.

THE SOUTH

New Orleans: There was a little more activity last week, but total volume was below normal. There were some bookings for as far ahead as four months, however, with southwestern hard wheat flour as principal mover. Bakers and jobbers were best outlets, but most business was on a hand-to-mouth basis. Midwestern and Pacific Coast flours were in poor demand, particularly the latter. There were a few sales of northern spring wheat flours in limited quantities. Prices unchanged, probably due to narrow fluctuation of wheat. Shipping directions were good, as were deliveries. Bread, cake and cracker and macaroni production was good to normal.

Quotations: hard spring wheat family patent $7.25@7.55, first patent $7.05@7.25, standard patent $6.75@6.95, fancy clear $6.20@6.45, first clear $5.95@6.15, second clear $5.35@5.75; hard winter wheat family patent $6.40@6.65, bakers short patent $6.15@6.40, 95% $5.95@6.15, first clear $5.05@5.65, second clear $4.65@4.95; soft wheat short patent $6.65@7.25, straight $5.90@6.25, first clear $5@5.35.

Atlanta: Business picking up except for blenders, who seem to be coasting. Movement of flour to them improving, however, even though they are not interested in placing new bookings. Family flour sales to jobbers slow to fairly good in spots; some felt it best to purchase in face of the price control bill, while others were still inclined to wait and see what would happen. Deliveries slow to considerably better. Bakers beginning to enter market and trading with them much better. Round lots have been sold and inquiries indicate that they deem it wise to purchase for 1942 right now. Movement on contracts fair to good; prices unchanged to 5c higher, and in some instances 10c lower.

Quotations, Jan. 10: spring wheat bakers short patent $6.80@7.25, standard patent $6.70@7, straight $6.60@7.80, first spring bakery clear $6.40@6.85; hard winter wheat family short patent $7.25@7.30, fancy patent $6.85@6.90, standard patent $6.85@6.90, special or low grade $6.45@6.50, 95% $7@7.05, bakery short patent $6.50@6.80, standard patent $6.30@6.70, straight $6.10@6.60, low protein 95% $6.10@6.20, bulk; hard wheat first clear $5.45@5.65, bulk; second clear $5.05@5.20, bulk; soft wheat family short patent $7.45@7.65, fancy patent $7.05@7.25, standard patent $7.05@7.25, special or low grade $7.65@7.85, 95% $6.75@6.95; soft wheat short patent, bulk basis, $6.25@6.40; soft wheat 95% $5.95@6.15, bulk; straight $5.85@6.05, bulk; fancy cut-off $5.40@5.60, bulk; soft wheat first clear $5.30@5.40, bulk; second clear $4.90@5.10, bulk; no quotations on Pacific Coast, although some has been sold in this territory all-rail shipment; self-rising family flour quoted 25c higher.

Nashville: New sales rather slow as buyers have moderate stocks on hand and contracts booked to run some 30 to 60 days. Sales to the consumers have been light, as we are snowbound by a 3-inch snow last Saturday followed by an additional 3.2 Wednesday of this week and temperature hovering considerably below zero. Outbound business to the merchants, jobbers and retailers in the South and Southeast has been slow, but nothing to get alarmed over, inasmuch as they have fair stocks on hand and are still carrying 30-day bookings. Bakers have bought only in small lots, as they need special grades, inasmuch as they have booked for 60- and 90-day requirements. Their sales to the consumers continue good. Shipping directions fair. Prices about unchanged. Quotations, Jan. 10: soft winter wheat short patent $6.75@7.50, standard patent $6.45@6.75, fancy patent $6.15@6.45, clears $5.85@6.15, hard winter wheat short patent $6.45@6.90, standard patent $6.15@6.45, spring wheat short patent $6.95@7.25, standard patent $6.60@6.95.

PACIFIC COAST

Seattle: Flour markets remain very quiet. Local demand has been unusually quiet due to rush of buying just after start of war. Now with jobbers and wholesalers well stocked, retail trade has slowed up. Domestic export trade now confined to California business. The bulk of new business booked during week was in that direction. Export business extremely quiet with South America only outlet for parcels lots only. Milling operations will be very light for next few months. Quotations, Jan. 10: family patent $7.15@7.45, bluestem $7@7.20, straight

A SUMMARY OF FLOUR QUOTATIONS IN LEADING MARKETS

Week-end flour quotations, per bbl of 196 lbs, packed in 98-lb cottons or 140-lb jutes. All quotations on basis of carload lots, prompt delivery.

	Chicago	‖Minneapolis	Kansas City	St. Louis	Buffalo	New York	Baltimore	Philadelphia	Boston	Cincinnati	†Nashville
Spring first patent	$6.30@ 6.70	$6.85@ 6.95	$....@....	$5.80@ 6.30	$6.75@ 6.85	$6.90@ 7.15	$6.70@ 6.95	$6.95@ 7.10	$6.90@ 7.05	$7.25@ 7.50	$6.95@ 7.25
Spring standard patent	6.10@ 6.50	6.55@ 6.70	....@....	5.65@ 6.05	6.65@ 6.75	6.50@ 6.80	6.45@ 6.65	6.75@ 6.90	6.75@ 6.90	6.75@ 7.00	6.60@ 6.95
Spring first clear	5.60@ 6.00	5.95@ 6.15	....@....	5.35@ 5.80	5.90@ 6.00	6.15@ 6.45	....@....	6.10@ 6.25	6.40@ 6.65	5.50@ 5.75	....@....
Hard winter short patent	6.05@ 6.40	....@....	6.00@ 6.25	5.60@ 6.30	....@....	6.40@ 6.65	6.35@ 6.55	6.60@ 6.80	6.75@ 6.90	6.75@ 7.00	6.45@ 6.90
Hard winter 95% patent	5.90@ 6.20	....@....	5.85@ 6.00	5.45@ 5.95	....@....	6.40@ 6.55	6.15@ 6.40	6.45@ 6.60	6.40@ 6.65	6.25@ 6.50	6.15@ 6.45
Hard winter first clear	4.75@ 5.10	....@....	3.90@ 4.15	4.50@ 4.90	....@....	5.20@ 5.50	....@....	....@....	....@....	5.00@ 5.25	....@....
Soft winter short patent	5.70@ 6.10	....@....	....@....	6.35@ 7.25	7.10@ 7.20	....@....	6.50@ 7.20	....@....	6.10@ 6.30	6.25@ 6.50	6.75@ 7.50
Soft winter straight	5.50@ 6.00	....@....	....@....	5.65@ 6.05	....@....	5.80@ 6.15	*5.10@ 5.45	*5.10@ 5.85	5.85@ 6.10	6.00@ 6.25	6.45@ 6.75
Soft winter first clear	4.70@ 5.10	....@....	....@....	4.85@ 5.25	....@....	....@....	....@....	....@....	5.65@ 5.85	4.75@ 5.00	5.85@ 6.15
Rye flour, white	4.50@ 4.70	4.85@ 5.25	....@....	....@ 5.20	....@ 5.50	4.85@ 5.25	....@ 4.90	5.20@ 5.35	....@....	4.25@ 4.50	....@....
Rye flour, dark	3.50@ 3.95	4.05@ 4.55	....@....	....@ 4.50	....@ 4.80	....@....	....@ 4.20	....@....	....@....	3.75@ 4.00	....@....

	††Seattle (98's)	S. Francisco	Standard patent—	Seattle	San Francisco	Toronto **Winnipeg		Toronto **Winnipeg
Family patent	$7.15@7.45	$8.60@8.80	Dakota	$7.00@ 7.25	$6.30@ 6.50	Spring top patent‖	$....@5.25 $....@5.20	Spring exports§ 27s 3d
Soft winter straight	6.00@6.10	....@....	Montana	6.75@ 6.90	6.00@ 6.20	Spring second pat.¶	....@4.50 ....@4.70	Ont. 90% patents‡ $5.25
Pastry	6.00@6.10	5.00@5.20				Spring first clear‖	....@3.40 ....@....	

*Includes near-by straights. †Nashville prices basis f.o.b. Ohio River points for soft winter wheat flour. **In jutes, Fort William basis. ‖98-lb jutes. ‡Second-hand jutes. §140-lb jutes. ‖Tuesday prices. ††F.o.b. Atlantic ports.

GRAIN FUTURES—CLOSING PRICES

Closing prices of grain futures at leading option markets, in cents per bushel:

WHEAT

	Minneapolis		Chicago		Kansas City		St. Louis		Duluth	
	May	July	May	July	May	July	May	July	May	July
Jan. 7	124⅝	126⅛	129¼	130½	123¾	124⅝	....	....	117½	118
Jan. 8	124⅛	125½	128⅝	129⅝	123	123⅝	....	....	116⅛	117⅛
Jan. 9	124⅛	125⅝	128⅝	130½	123¼	124	....	....	116⅝	117⅝
Jan. 10	124⅞	126⅝	129⅝	130⅝	123⅞	124⅝	....	....	117¼	118¼
Jan. 12	128⅝	130	133⅝	135	127⅞	128⅝	....	....	120⅞	121⅞
Jan. 13	125⅝	127¼	130⅝	132¼	124⅝	125⅝	....	....	118¼	119¼

	Portland		Seattle		Winnipeg		Liverpool		Buenos Aires	
	May	July	May	July	May	July				
Jan. 7	102	....	102½	....	78⅝	79⅞	Closed		Closed	
Jan. 8	102	....	102	....	78⅞	80	....	....	....	....
Jan. 9	102	....	102½	....	79	80½	....	....	....	....
Jan. 10	102	....	102⅝	....	79	80¼	....	....	....	....
Jan. 12	....	....	....	....	79½	80⅝	....	....	....	....
Jan. 13	....	....	....	....	79⅝	80½	....	....	....	....

CORN

	Minneapolis		Chicago		Kansas City		OATS			
							Chicago		Minneapolis	
	May	July	May	July	May	July	May	July	May	July
Jan. 7	79⅛	....	85⅝	87¾	80⅝	82⅝	58¾	58⅛	54⅞	54¼
Jan. 8	78⅝	....	85½	87½	80⅝	82¼	58½	57⅞	54⅝	54
Jan. 9	78⅜	....	85½	87⅝	80⅝	82⅝	58⅜	57⅝	54⅞	54⅛
Jan. 10	79⅛	....	86	87⅞	81¼	82⅞	58⅜	57⅝	55	54⅛
Jan. 12	80½	....	87¼	89	82⅝	84½	60	59⅝	56¼	55⅝
Jan. 13	79¼	....	86½	88	80⅞	82⅝	58⅞	58¼	55	54½

	RYE				FLAXSEED				BARLEY
	Chicago		Minneapolis		Minneapolis		Duluth		Minneapolis	
	May	July	May	July	May	July	May	July	May	July
Jan. 7	80¼	82½	75⅝	77¾	208¼	210½	208¼	....	64	66
Jan. 8	79¼	81½	74⅞	77	207	209	207	....	64	66
Jan. 9	80	82¼	75½	77½	206½	208½	206½	....	64½	66½
Jan. 10	81½	84	77¾	79⅝	208½	210¼	208½	....	64½	66½
Jan. 12	86	88¼	81⅝	83⅞	212	213½	212	....	68¼	68¼
Jan. 13	84⅛	86⅝	79½	81½	209	210⅝	209¼	....	65	67

SUMMARY OF MILLFEED QUOTATIONS

Week-end millfeed quotations, summarized from the market reviews, are based on carload lots, prompt delivery, per ton, packed in 100-lb sacks, f.o.b. at indicated points:

	Chicago	‡Minneapolis	Kansas City	St. Louis	Buffalo
Spring bran	$33.25@33.50	$32.50@33.00	$....@....	$....@....	$....@36.00
Hard winter bran	33.00@33.25	....@....	30.50@31.00	33.50@33.75	....@....
Standard middlings*	33.50@34.00	32.50@33.00	....@....	34.75@35.00	....@35.50
Flour middlings†	34.50@35.00	33.50@34.00	33.50@34.00	35.25@35.50	....@35.50
Red dog	35.00@35.50	34.50@35.00	....@....	....@36.50	....@35.50

	Baltimore	Philadelphia	Boston	Cincinnati	Nashville
Spring bran	$....@36.25	$38.75@39.25	$40.00@41.00	$....@....	$....@....
Hard winter bran	....@....	39.25@39.75	....@....	....@....	....@....
Soft winter bran	....@36.50	....@....	40.00@41.00	....@38.00	35.50@36.50
Standard middlings*	....@36.00	38.50@39.00	39.00@39.50	37.00@37.50	37.50@38.00
Flour middlings†	....@35.50	38.50@39.00	40.00@40.50	....@38.00	37.00@38.00
Red dog	....@36.00	38.50@39.00	....@39.50	41.00@42.00	....@....

	Spring bran	Shorts	Middlings
Toronto	$....@29.00	$....@30.00	$....@33.00
¶Winnipeg	....@28.00	....@29.00	....@....

*Brown shorts. †Gray shorts. ¶Fort William basis. ‡Tuesday prices.

soft white $6@6.10, pastry $6@6.10, Dakota $7@7.25, Montana $6.75@6.90.

Portland: New bookings continued limited in the Pacific Northwest. Domestic bookings have shown some improvement since first of year, although buyers are pretty well stocked on old bookings. There is a heavy curtailment of milling operations because of lack of export business and domestic trade is not sufficient to maintain high operations.

Export trade is extremely dull. Some very small orders are coming in from Central-South America, but mills are not sharing in heavy purchases being made by these countries. The Gulf apparently is getting a much greater share of the trade. Some interior mills are moving occasional cars to the Middle West, but trade is not broad. There is no export business to other than South-Central America. Mills have flour scattered in many ports, and bookings previously made cannot be shipped because of war.

Export subsidy is unchanged, 90c to the Philippines, with no business at all, and $1.35 to the Americas. Range of prices at close: f.o.b. mill, all Montana $6.45@6.65; bluestem bakers, unbleached $6.20@6.40; bluestem bakers, $6@6.20; Big Bend bluestem, $5.95@6.15, cake $7.70@7.90, pastry $5.10@5.30, pie $5.10@5.30, fancy hard wheat clears $6@6.20; whole wheat, 100% $5.95@6.15, graham $5.05@5.25, cracked wheat $5.05@5.25.

Ogden: Demand remained good on all grades during week, although not a great deal being offered. Farmers are holding grains for higher prices and are not inclined to sell; prices advanced $1.50. Quotations upward. To Utah and Idaho dealers: red bran and mill run $34, blended $34, white $34.50, midds. $40.50, carload lots, f.o.b. Ogden. Denver prices: red bran and mill run $39, blended $39, white $39.50, midds. $45.50 per ton. California prices: red bran and mill run $41, blended $41, white $41.50, midds. $47.50, car lots, f.o.b. Los Angeles. Millfeed prices for San Francisco shipments quoted 50c under Los Angeles.

San Francisco: Prices firmer, but no interest in buying developed; business dull; deliveries continue fair. Quotations, Jan. 10: eastern family patents $8.80@9, California family patents $8.60@8.80, Oregon-Washington bluestem blends $6@6.20, northern hard wheat patents $5.80@6, pastry $5@5.20, Dakota standard patents $6.30@6.50, Idaho hard wheat patents $6@6.20, Montana spring wheat patents $6.20@6.40, Montana standard patents $6@6.20, California bluestem patents $5.70@5.90, California pastry $5@5.20.

CANADIAN MARKETS

Toronto-Montreal: Sales of spring wheat flour in domestic market increasing. Now that end-of-the-year stock taking is over buyers show more disposition to place orders. Mills report contracts occasionally being made by bakers and a fair retail business is also being done. Impassable roads in most parts of country this week are keeping sales lower than would otherwise be the case. Mill list prices are unchanged. Quotations, Jan. 10: top patents $5.25 bbl, seconds $4.50, bakers $4.30, in 98's, jute, car lots, net cash, track, Toronto-Montreal territory.

Canadian mills had a fairly active week in exporting end of their business. The United Kingdom was in market for the usual quantity in the first few days and there were also sales made to South Africa. Flour which had been sold to Russia some weeks ago and was afterwards canceled has been bought by the Cereal Import Committee, which is highly satisfactory to mills concerned. Not much business in any other direction was done. The West Indies have been showing little interest in recent weeks and Newfoundland is well booked up. The asking price has advanced 3d. Quotations, Jan. 10: vitaminized flour for shipment to the United Kingdom 27s 3d per 280 lbs, jute, f.o.b. Montreal, January; 27s 3d, February.

Pure Ontario winter wheat flour is selling in a limited way. It is too dear for most buyers as compared with springs. No great quantities are offering, as millers are being governed in their production by demand and problem of getting supplies of wheat. The latter is scarce. A good deal of regular winter wheat flour trade is being diverted to blends which bring price to a more reasonable level and answer purpose in most cases. Prices are unchanged from a week ago. Quotations, Jan. 10: pure Ontario winters $5.25 bbl, in second-hand jutes, f.o.b. Montreal; $5.05, bulk lots for export, in buyers' bags.

Heavy snowfalls throughout country are further slowing up delivery of Ontario winter wheat. Mills are finding it increasingly difficult to get supplies even at ceiling prices, which are now general all over the province. There is an increase of 1c bu in some localities as compared with last week. Quotations, Jan. 10: $1.12@1.14 bu, f.o.b. shipping points.

Winnipeg: Good export business to United Kingdom featured trade in flour last week. Estimates placed sales at equivalent to 1,250,000 bus of wheat. Domestic bakers were credited with taking fair amounts of flour and this particular business was reflected in Winnipeg wheat futures market. Supplies of flour are not burdensome, but moving freely. The majority of western mills were shut down last week for their annual freeze. Quotations, Jan. 10: top patent springs for delivery between Fort William and British Columbia boundary, $5.20, cottons; seconds, $4.70; second patents to bakers, $4.50.

Vancouver: Forced almost completely out of the export picture, western Canadian mills are now concentrating on the domestic trade and find that the demand is very steady. Until the allied powers can concentrate sufficient men and supplies to force back the Japanese invaders of the South China seas, it is not expected that any attempt will be made to put Canadian flour afloat for oriental ports.

Since the War Time Prices and Trade Board went into operation here, domestic flour prices have held steady. The cash car quotation for 98's, cottons, for first patents is $5.60 while bakers patents are offered at $4.90. Ontario pastry is finding an increasing market here now that all American supplies have been shut out. Quotations are $7.40@7.60.

MILLFEED MARKETS

Quotations Tuesday, Jan. 13

Minneapolis: Demand good in all markets, but with offerings low because of continued light mill operations tight situation exists; mixed car trade bought everything offered, but brokers, mixers and jobbers were out of market anticipating ceiling on millfeed, although Washington sources indicated no intention of imposing ceiling unless necessary. Confidence was restored somewhat when ceiling on fats and oils was raised to higher levels; indications were that price trend would continue upward; quotations are $1@2 higher than a week ago; bran and std. midds. $32.50@33, flour midds. $33.50@34, red dog $34.50@35.

Oklahoma City: Continued cold weather is reflected in feed prices, which advanced $1 ton on each class. Quotations, basis burlap bags, carload shipments, delivered Oklahoma points: bran $1.60@1.65 per bag of 100 lbs; mill run $1.65@1.70, shorts $1.70@1.75.

Omaha: Sales of wheat feeds were much larger and there was heavy demand from mixers South and Southeast, in addition to regular trade; buying was largely for deferred shipment; Omaha mills quoted car lots f.o.b. Omaha as follows: std. bran $29.75, pure bran $30@30.50, brown shorts $31.50, gray shorts $32@32.25, flour midds. $32@32.25, red dog feed $35.

Denver: Fair; trend strong; supply ample; bran, std. red $29, red mill run $30, white $31; shorts, gray $32, brown $33; red dog, $34.

Wichita: Good; trend higher; supply limited; bran $30@31, mill run $31@32, shorts $32@33.

Hutchinson: Active; trend firm; supply inadequate; bran $30, mill run $31, gray shorts $32 (Kansas City basis).

Salina: Good; trend higher; supply inadequate for immediate shipment; basis Kansas City; std. bran $30@30.50, gray shorts $31.75@32.25.

Fort Worth: Good; trend higher; supply does not exceed demand; unusually severe and prolonged cold spell since Jan. 1 stimulates demand; wheat bran $33@33.60, gray shorts $36.40@37, white shorts $39@40, car lots, del. TCP or Galveston domestic.

Chicago: Better; trend firmer; supply moderate; spring and hard winter bran $33.50, std. midds. $34@34.50, flour midds. $34.75@35.50, red dog $35@35.50.

St. Louis: Bran $33.50@33.75, pure bran $33.75@34, gray shorts $35.25@35.50, brown shorts $34.75@35, red dog $36.50.

Toledo: Up again to practically the previous high level of the crop and moving readily into consumption; midds. softer than bran; soft winter wheat bran $34.50, mixed feed $34.75, flour midds. $35, std. $34, Toledo second clear none to offer.

Cincinnati: Demand good; trend higher; supplies on bran, red dog and gray shorts adequate; bran $38, red dog $41@42, gray shorts $38, brown $37@37.50.

Buffalo: In excess of supply, resulting in another sharp price upturn; buyers overstayed market and now fear empty sack shortage; trend firm; supply light; bran $36, std. midds. $35.50, flour midds. $35.50, second clears $39.50, red dog $35.50, heavy mixed feeds $35.50.

New York: Light; trend steady; supply fair; bran $37.60, std. midds. $37.60, flour midds. $37.60, red dog $37.60.

Boston: Market tightened up noticeably; offerings not so free as in previous weeks. Supplies from Buffalo for spot shipment scarce and higher than the West on bran 50c per ton, but both on the same basis for midds. A limited amount of Canadian bran and shorts offered below domestic; some shipments on old contracts. Spring and winter bran $40@41, std. midds. $39@39.50, flour midds. $40@40.50, and red dog $39.50.

Baltimore: Good; trend strong; supply light; std. bran $36.25, pure soft winter bran $36.50, std. midds. $36, flour midds. $35.50, red dog $36.

Philadelphia: Fair; trend upward; supply small; bran, std. $38.75@39.25, pure spring $39.25@39.75, hard winter $39.25@39.75, soft winter nominal; midds., std. $38.50@39, flour $38.50@39, red dog $38.50@39.

Pittsburgh: Active; trend higher and firm; supply adequate; spring bran $37.90, red dog $40.

Atlanta: Fair; trend unsteady; supply ample; bran $39@40, gray shorts $40.50@41, std. midds. $41.50@42, rye midds. $37@37.50, red dog $44@46.

Seattle: Improved; trend strong; supply fair; $35@36.

Portland: Std. mill run $36, bran $37, shorts $38, midds. $41.

San Francisco: Market continues firm, with offerings light and demand fair; Kansas bran $39.50@40; Utah-Idaho: red mill run $39@39.50, blended $39.50@40, white $40@40.50; Oregon-Washington: red mill run $39.50@40, std. $40@40.50, white $40.50@41, white bran $41.50@42, midds. $44@44.50, shorts $42.50@43; Montana: bran and mill run $40@41; California: blended mill run $39.50@40, white $40@40.50.

Los Angeles: Fair; trend steady; supply limited; Kansas bran $39.50, local midds. $45, local mill run $39.

Toronto-Montreal: Trend steady; demand heavy; offerings adequate; mills have been operating steadily, with result that there is enough millfeed for requirements; any shutdown of mills, however, would cause immediate scarcity. The freight subsidy has created hardship in trade, as many dealers are not financially able to continue allowing the amount of subsidy on their sales of millfeed without reimbursement; no payments have been made by the government as yet on this account. The sum of $4.50 ton

WANT ADS

Advertisements in this department are 5c per word; minimum charge, $1. (Count six words for signature.) Situation Wanted advertisements will be accepted for 2½c per word, 50c minimum. Display Want Ads $4 per inch per insertion. All Want Ads cash with order.

SITUATIONS WANTED

CAPABLE, EXPERIENCED YOUNG MILL executive available; good reasons for seeking change. Address 5399, The Northwestern Miller, 614 Board of Trade, Kansas City, Mo.

EXPERIENCED MILL REPRESENTATIVE, eight years with present connection in Illinois, Wisconsin; assure excellent references; sold all types flour and trade. Address 5407, The Northwestern Miller, Minneapolis, Minn.

WANTED—POSITION BY EXPERIENCED superintendent miller; uniform quality products guaranteed; age 53; capable any size plant; location of minor importance; executive ability; correspondence solicited. Address 5400, The Northwestern Miller, Minneapolis, Minn.

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ROLLER MILLS, REELS, SIFTERS, SUCTION fans, bran dusters, scourers, idlers, receiving separators, percentage feeders. Schuchardt Bros., 208 19th Ave. N., Minneapolis, Minn.

MACHINERY IN A 350- TO 400-BBL NORDYKE & MARMON modern flour mill, complete in every detail; excellent condition. For full particulars and list address H. C. Purvine, Bristol, Tenn.

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WANTED—BRIGHTWOOD BOX MACHINE —Pneumatic scale packaging machine; two flour blenders. Address 4970, The Northwestern Miller, Minneapolis, Minn.

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Have you the shortest perpetual inventory method ever devised for use in a mill? Are your cost records, sales data and recoveries so kept as to aid sound management? Increased taxes and governmental controls have multiplied the need for close supervision over your business—essential to earning a profit. Probably we can help you.

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Consultation and Research on
VITAMINS
Assays of Enriched Flour, Bread, etc.
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Biological, Chemical, Fluorometric and Microbiological Methods

PRESTON-SHAFFER MILLING CO.
MERCHANT MILLERS
ESTABLISHED 1865
SOFT WHITE WINTER WHEAT FLOUR A SPECIALTY
Also Choice Blue-Stem and Hard Spring Patents
WE INVITE EXPORT CORRESPONDENCE
General Offices: WALLA WALLA, WASHINGTON
Mills at Waitsburg, Washington, Freewater, Oregon, and Athena, Oregon—Daily Capacity, 3,000 Bbls
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Centennial Flouring Mills Co.
GENERAL OFFICE—814 Second Ave. Bldg. SEATTLE, WASH., U. S. A.
DOMESTIC AND EXPORT MILLERS
SOFT WINTER WHEAT FLOURS
BLUESTEM AND HARD SPRING WHEAT FLOURS
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Mills at Tacoma, Spokane, Reardan, Ritzville, Wenatchee, Wash., U.S.A.
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Made from Wisconsin Grown Rye
We are exclusive rye millers and the largest producers of rye flour in the state.
WHITE HEATHER....BLUE RIBBON....RYE MEAL
GLOBE MILLING CO.
WATERTOWN, WISCONSIN
"Wisconsin Makes the Best Rye Flour"

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MILLERS OF
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Cable Address: "WASCO." All Codes. Daily Capacity 2,000 Barrels
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The largest and most modern flour mill and elevators on the Pacific Coast with storage capacity at our mills of 2,500,000 bushels, together with more than one hundred elevators and warehouses in the choicest milling wheat sections of Montana, Idaho and Washington, insure the uniformity of all Fisher's Flours.
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CROWN MILLS
PORTLAND, OREGON
Millers of High Grade Bakers, Family and Export Flours.
"THE FLOUR SUPREME"

AMES HARRIS NEVILLE CO.
PORTLAND, ORE. SAN FRANCISCO CAL.
BURLAP AND COTTON BAGS AND SEWING TWINE

WESTERN MILLING CO.
MONTANA SPRING WHEAT PATENT
BLUESTEM—PATENT
FINEST SOFT WINTER WHEAT PATENT
General Offices: Walla Walla, Washington Mill at Pendleton, Oregon

(amount of freight subsidy) must be deducted from following prices to arrive at the domestic level: bran $29, shorts $30, midds. $33 ton, net cash, bags included, mixed or straight cars, track, Montreal freights.

Vancouver: Trend steady under price control, with quotations unchanged for more than a month; domestic demand continues extremely good under freight assistance measure giving coast farmers a $6 ton reduction on stuff coming from prairies. Millfeed is becoming hard to get here and dealers are reported keeping their stocks full only with difficulty. Owing to fact that feed flour does not come within provisions of freight assistance measure and is therefore $6 ton above other prices, there is practically no demand for it; bran $30.80, shorts $31.80, and midds. $34.80.

Winnipeg: Trade light as far as western provinces are concerned, but bulk of supplies continue to move East for feeding needs; supplies light; bran $28, shorts $29, Man. and Sask; Alta. bran $26.50, shorts $27.50; small lots ex-country elevators and warehouses $3 extra.

RYE PRODUCTS

Minneapolis: Market strengthened further during week, with prices advancing about 50c bbl, due to strength in grain. Sales improved some and were fair during advances on Jan. 12. Shipping directions continued only fair; pure white rye flour $4.85@5.25 bbl, in 98-lb cottons, f.o.b. Minneapolis; pure medium $4.65@5.05, pure dark $4.05@4.55.

Cincinnati: Prices rye flour: white $4.25@4.50, medium $4@4.25, dark $3.75@4; demand is fair and supplies ample.

Pittsburgh: Demand moderate; trend unchanged; supply ample; pure white rye flour $4.50@4.75, medium $4.15@4.40, dark $3.75@3.90.

St. Louis: Prices advanced 30c; sales and shipping directions fair; pure white flour $5.20 bbl, medium $5, dark $4.50, rye meal $4.80.

Chicago: Advancing prices resulted in some business, but most users have bought sparingly; white patent $4.50@4.70, medium $4.30@4.50, dark $3.50@3.95.

Philadelphia: Firm and higher, but trade quiet; white patent $5.20@5.35.

Buffalo: Demand fair; trend firm; supply ample; in 98-lb cottons: dark $4.80, medium $5.30, white $5.50.

New York: Interest moderately active, with light covering in several channels; pure white patents $4.85@5.25.

Baltimore: Rye flour and No. 2 rye steady; demand little changed; rye flour, dark to white, $4.20@4.90 bbl; No. 2 rye, 85@90c bu; rye stock in local elevators decreased 5,000 bus during the week to a total of 147,659 bus.

SEMOLINA MARKETS

Minneapolis: No improvement in shipping directions was reported by durum millers during week, although macaroni manufacturers have not ordered out semolinas and flours bought for November-December shipment. Prices registered a 10c bbl advance during week, but even with higher trends in prospect trade does not show interest. New bookings dull. Fancy No. 1 semolina $6.30@6.40 bbl, bulk, f.o.b. Minneapolis; standard No. 1 $6@6.10, and granular $5.90@6; durum clears, $4.45.

In the week ended June. 10, nine Minneapolis and interior mills made 79,680 bbls durum products, against 55,886 in the previous week.

Philadelphia: Firm, but buyers operating cautiously; No. 1 durum semolina, $6.75@6.85.

Buffalo: Demand slightly up, but still no general interest in booking, although market edging up daily; trend firm; supply fair; shipping directions fair to good, with most macaroni plants on full production schedule; No. 1, $7.35; durum fancy patent, $7.35; macaroni flour, $6.50; first clear, $5.25; second clear, $4.35; durum granular, $6.95.

Chicago: Prices higher, but buying shows only a little improvement; No. 1 semolina, $6.40@6.55.

St. Louis: Prices advanced 20@35c; sales and shipping directions fair; first grade semolina $7.45, granular $7.15, No. 3 $6.95, durum fancy patent $7.45.

Pittsburgh: Demand moderate; trend unchanged; supply ample; No. 1 $6.65, nominal.

OATMEAL MARKETS

Toronto-Montreal: Rolled oats and oatmeal are moderately active; cold weather has improved demand; fair quantities are occasionally sold to British buying authorities; some of these purchases are for use of armed forces; price is steady. Quotations, Jan. 10: rolled oats $3.25 per 80-lb bag, delivered, mixed cars, Toronto-Montreal.

Winnipeg: Demand seasonal and business about normal; no new export business confirmed; supplies generally light. Quotations, Jan. 10: rolled oats, in 80-lb sacks, $3.25 in the three prairie provinces; oatmeal, in 98-lb sacks, 20% over rolled oats.

Minneapolis: Rolled oats were quoted on Jan. 12 at $3.70 per 90 lbs, bulk; 20-oz packages $2.20 per case; 48-oz packages $2.35.

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Great Bread Makers
From Selected Spring Wheat
DULUTH UNIVERSAL
PRIDE OF DULUTH
DULUTH RELIABLE
PURE GOLD
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APEX—Fancy Clear
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Try our high protein spring wheat Graham and Whole Wheat flours, Farina and Pure Wheat Germ.
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FLOUR
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All our wheat is grown on "Western Reserve" and bought from the growers at elevators we own and operate.

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Quality Millers *for* Over Half a Century
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For Discriminating Eastern Buyers
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MILLERS OF
High Grade Soft Winter Wheat Flour
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PURE RYE FLOUR
We make a high-grade pure winter rye flour
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BLACK BROS. FLOUR MILLS
1863-1941
FLOUR 1,000 BBLS.
STOCK FEED 250 TONS
WYMORE • NEBRASKA

Law

(Continued from page 31.)

plans to be followed by the contractor is a warning gleaned from the decision of the Minnesota supreme court in the case of Field-Martin Co. vs. Fruen Milling Co., 298 N. W. 574.

The plaintiff agreed to construct a cleaning house for the defendant mill, but the written contract left in doubt whether the work was to be done according to an engineer's Plan No. 1, which the mill had found unsatisfactory, or according to Plan No. 2, which constituted a revision of Plan No. 1.

When the job was almost completed, a controversy resulted, the contractor insisting that Plan No. 1 governed, and the mill insisted on Plan No. 2.

The court decided that, under the circumstances, the mill reasonably interpreted the contract as calling for a job done under Plan No. 2, and that the rights of the parties were governed accordingly. It was immaterial that the contractor entertained a different notion as to the meaning of the contract.

Localizing Wrongs

Assuming that a mill negligently has permitted a harmful foreign substance to find its way into flour during the manufacturing or packing process, and that injury results to an ultimate consumer at a point distant from the mill, where does the actionable wrong occur—at the mill or where the injury occurs? That is the interesting question with which the Pennsylvania supreme court wrestled in the case of Openbrier vs General Mills, 16 Atl. 2d, 379.

Flour milled and packed in Buffalo, N. Y., was sold to a McKeesport, Pa., wholesaler, who resold it to a Washington, Pa., grocer, who sold to a local housewife, who sued the mill for damages on the ground that she became ill when she swallowed pieces of broken glass imbedded in bread that she baked from the flour. The opinion of the court did not deal with the merits of Mrs. Openbrier's claim that the mill was at fault by negligently permitting the glass to get into the flour in the milling or packing process. The only question presented was whether the milling company, a nonresident corporation, was suable in the county where Mrs. Openbrier was injured, since it had no office or place of business in that county. The court decided that the wrongful act of the mill, if any, was completed at the place of injury, and that, therefore, suit against the mill was properly brought in that county, under a Pennsylvania statute which permits suit against a foreign corporation in any county in which it has a registered office, *"or in the county in which the right of action arose."*

Bulk Sales Laws

In a suit brought by a Tennessee mill, the supreme court of that state made this summary of the purposes of bulk sales laws, under which transfers of mercantile stocks are invalid as against the transferror's unnotified creditors: The laws are intended to prevent preferences amongst unsecured creditors, and to place all on an equal plane. Where one creditor sues to invalidate a transfer and subject the property to the claims of creditors, any creditor is entitled to present his claim any time before the property, or its proceeds, has been distributed. (Middle Tennessee Mills vs. Rocky River Coal & Lumber Co., 145 S. W. 2d, 787.)

Water Power Rights

In a mill owner's action against a city for damages for diminishing his water power by taking water from the stream for sale through the city's waterworks to private consumers, the North Carolina supreme court followed the well-recognized rule that the right of a riparian owner to use the water of a stream for power purposes is paramount to the right of a municipality to take the water for distribution to nonriparian owners. (Pernell vs. City of Henderson, 16 S. E. 2d, 449.)

The court also recognized the mill owner's right to recover damages resulting from the city depositing sewage in a stream above the mill, thereby causing the millpond to become clogged, foul and noxious. Discontinuance of the nuisance did not relieve the city from liability for injury already done.

Loss of Rights

That right to maintain a mill-dam for power purposes, thereby flooding upper riparian lands or withholding water from lower lands, *may* be lost through long-continued *disuse* of the stream for such purposes is well settled by many court decisions. But that the right is not to be deemed to have been *abandoned,* and therefore lost, merely through long continued disuse, is shown by an interesting decision rendered by the Tennessee court of appeals in the case of Smelcer vs. Rippetoe, 147 S. W. 2d, 109.

A dam was placed across Lick Creek in Greene County, East Tennessee, a century ago—so long ago that there is no record of how legal right to maintain it was initiated. The flour mill to which the dam was appurtenant changed its name as owners came and went, but the dam stayed on, although it was once rebuilt out of wood and later out of concrete. The concrete dam lasted from 1914 until 1929, when vandals dynamited it, partly destroying it. After 1929, no steps were taken to repair the dam or use it until 1937, when the mill property had been sold under foreclosure of a mortgage given before the dam was damaged. Then the new owners' right to reflood lands by maintaining the dam was challenged on the ground that the right had been abandoned.

The court of appeals decided that the right had not been lost, holding: uninterrupted maintenance of the dam for more than 20 years established the right of the original owners to continue its maintenance, regardless of whether right to build the structure existed by grant.

Mere nonuser of the right to maintain the dam for eight years, resulting from the owners' financial straits, did not manifest such *intention* to abandon the right as is required by law to show abandonment. Even if the then owner of the mill declared that he did not intend to rebuild the dam, that would not show such abandonment as would bind the holder of the mortgage on the mill property or those purchasing the property under foreclosure of the mortgage.

The dam had not ceased to be an

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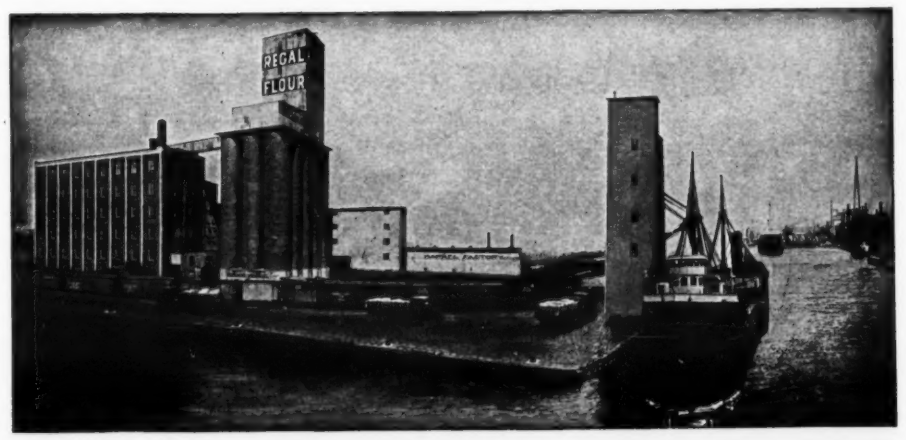

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"appurtenance" of the mill property, which passed to the purchaser of the property under the foreclosure, merely because it had been partly destroyed, a very substantial part remaining in the creek.

LOST DAM RIGHTS

But a decision rendered by the Virginia supreme court of appeals will serve to remind any miller who has suspended or abandoned mill operations on a stream that his rights to maintain a dam may be going or gone. In the case before the court—Chapman vs. Delk, 16 S. E. 2d, 379—effect was given to an old Virginia statute providing for forfeiture of dam rights where the mill to which they are appurtenant is not restored, by work commenced within two years, and completed within five years, after the mill has been destroyed or rendered unusable. There it appeared that a mill had been abandoned for 40 years and it was decided that, under the circumstances of the case, both the right to operate the mill and the incidental right to maintain a dam and flow riparian lands were gone.

National Labor Relations

A mill must be regarded as being so far engaged in interstate commerce as to be governed by the national labor relations act, where one fourth of its grain is brought from outside the state and more than one half of its product is sold outside, ruled the United States Circuit Court of Appeals, Tenth Circuit, in the case of National Labor Relations Board vs. Moore-Lowry Flour Mills Co., 122 Fed. 2d, 419.

The court further decided that the company had unduly interfered with the establishment and functioning of an independent union; that an employer's discrimination against an employee because of his affiliations with, or activities on behalf of, a union, within reasonable limits, is unfair labor practice, within the meaning of the federal act; that the board may order reinstatement of striking employees with back pay, where the employer has violated the act; but that an employer is not bound to reinstate employees who have committed violence against the employer's property.

Similar conclusions were reached by the United States Circuit Court of Appeals, Fifth Circuit, in the case of National Labor Relations Board vs. Tex-O-Kan Flour Mills Co., 122 Fed. 2d, 433.

Federal Wage Law

Provisions of the federal labor standards act could not be evaded by a contract between employer and employees made two days before the law took effect. So ruled United States District Judge Picard of Ohio in the case of Williams vs. General Mills, 39 Fed. Supp. 849.

At one of defendant's plants watchmen had worked 56 hours weekly and received 60c hourly. The defendant induced them to enter into contracts, two days before the act became effective, under which their basic pay would be reduced for the first 40 hours, with time and one half for overtime. It was not denied that the purpose was to reduce wages, maintain the same working hours and give the men the same aggregate pay that they had previously received. Nor was it denied that the agreed wage was above the minimum fixed by the statute.

Judge Picard pointed out that to give effect to the contract would be to circumvent the manifest purpose of Congress to reduce unemployment by discouraging overtime work. He notes that the requirement for payment of overtime for more than 40 hours' work weekly was not prompted by any feeling that longer work was harmful to workmen, but to force employers to employ more men.

"That the union indorsed the contract, if there is a contract, is of no avail," declared the court. "We believe it is the object of the law that neither the union nor employer can resort to any arrangement, method or subterfuge that would render ineffective the intent of Congress."

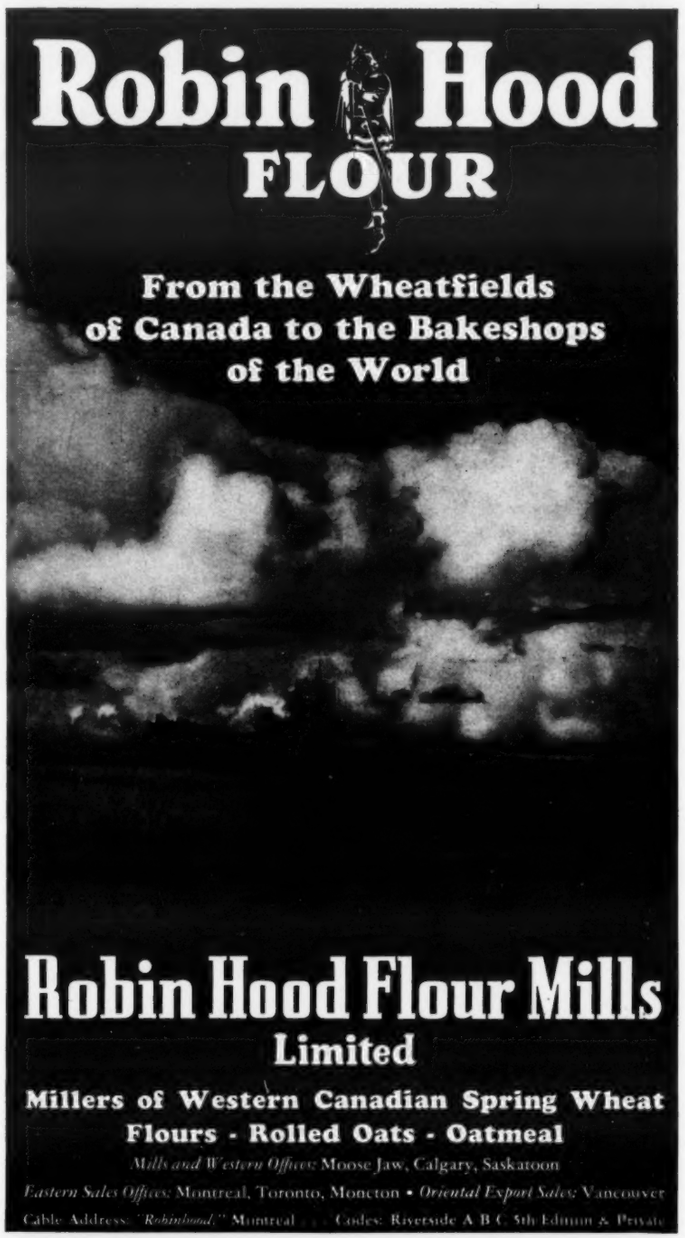
Workmen's Compensation

If a flour salesman were so violently to gesture in making a sales argument to a prospective buyer as to throw a shoulder, elbow or wrist out of joint, a nice legal question might arise as to whether or not he has sustained an accidental injury within the course of his employment, in such sense as to be entitled to an award under the workmen's compensation law of his state. Such a case obviously would present a clearer case of "accidental injury" than was presented in the case of Sandlie vs. North Dakota Workmen's Compensation Bureau, 295 N. W. 497.

Plaintiff, while employed as auditor of the North Dakota Mill & Elevator Association, suffered a paralytic stroke shortly after a wordy altercation that arose in the course of his employment. The North Dakota supreme court ruled that there was no proof of "accidental injury," as distinguished from a diseased condition. The court fully recognized that there may be an accidental acceleration of an existing diseased condition—for example, by a slight blow that would not seriously injure a healthy person—and that in such cases the gross result may be regarded as an accidental injury. But the court said that the possibility that the altercation might have unduly excited plaintiff emotionally, and the emotion might have so raised his blood pressure as to have caused a stroke that occurred a half hour or more later, did not show a compensable accidental injury.

On Duty or Off Duty?

Through fault of a mill's salesman while driving a car furnished him, he was killed in a collision with another car, whose occupants were seriously injured. The mill's liability to the latter turned upon the question whether the salesman was completing a two weeks' vacation and on his way to visit his parents or whether he had shortened the vacation and was on his way to call upon customers. A jury found that he was on duty and therefore awarded damages in favor of the injured motorists. In an interesting opinion, the United States Circuit Court of Appeals, Eighth Circuit, decided that circumstantial evidence supported the jury's conclusion. Among other circumstances were the fact that the salesman had a brief case with him and had hurriedly shaved—the inference being he would not have scrupled to go home unshaved, but would have scrupled to call upon his customers unshorn. (Pillsbury Flour Mills Co. vs. Miller, 121 Fed. 2d, 297.)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He listened to them patiently, then shook his head.

"To tell you the truth, gents," he said, "I don't know the first thing about poultry."

LONESOME

The drunk weaved up the avenue and staggered into a beauty salon. "Hello," he said, "ish thish the beauty shop?"

"Yes," replied the receptionist, "this is the beauty shop."

"Well, bring one out," sputtered the souse, "I'm lonesome."

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*

At many a deal in corn there are signs of a-maize-meant.

*

The "flower of the family" is not necessarily household flour.

*

When a miller does not give oats to his horse he generally "makes a meal of it" himself.

*

In a cornfield tell no secrets,
For remember, corn has ears,
And 'tis also shocked so easy,
That 'twere best it nothing hears!

*

We are sure of a full crop when the hen feeds well.

*

Cogwheel wants to know if a load of flour can be said to be properly discharged when it gets the sack!

*

A depression in the corn market generally "goes against the grain."

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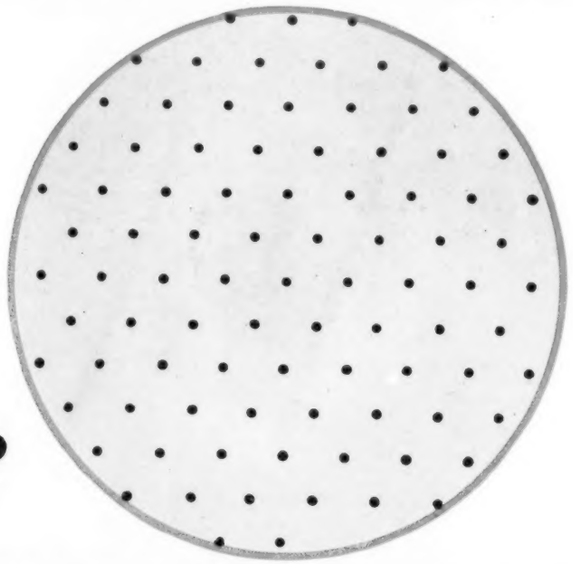
WHAT'S THE LONGEST DISTANCE— BETWEEN 2 POINTS?



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Novadelox particles average some four times smaller (in diameter) than the flour particles in which they are incorporated. More than this, however, the physical characteristics of Novadelox minimize cohesion between individual particles — there is no tendency to lump or segregate.

When fed into the flour by equipment specifically developed for a product of these characteristics (the W&T Novadelox Feeder) Novadelox is uniformly distributed in intimate contact with the flour. *The longest distance between any two "points" of Novadelox in the flour is still sufficiently short to get efficient and uniform whitening action of all of the flour, all of the time.*

Novadelox acts with predictable effectiveness and rapidity (whitening action is complete within 24 hours). It will give your flour a color and brilliance that is a delight to the buyer's eye. And if you consider the latitude it allows you in blending a wide variety of wheats, and the costly hazardous storage it helps to eliminate, you'll find Novadelox a money-saver as well as a sales-builder. NA 70

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2. GREATER DISPERSION for even whiteness
3. UNIFORM COMPOSITION for consistent results
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